Relations among Maltreatment History, Substance Use, and Coping in Youth in Foster Care:

Examination of Moderation Models

By

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Abstract

Child maltreatment is associated with a range of negative outcomes, including health risk behavior such as substance use (SU). This study aimed to test relations among maltreatment history, coping behavior, and SU behavior in youth residing in foster care. The sample consisted of 210 youth with a mean age of 12.71 years in either foster (68%) or residential (32%) placements. Confirmatory factor analyses were conducted across measurement models of each of the latent constructs, revealing good to excellent fit across measures. Using a structural equation modeling (SEM) framework and longitudinal methodology, positive associations were identified between maltreatment at baseline and coping behavior outcomes as well as SU behavior outcome at follow up approximately 4.5 months later. Specifically, maltreatment was associated with SU behavior as well as indirect action, prosocial, and antisocial coping behavior. Maltreatment was not significantly related to direct action coping behavior. In moderation tests, only antisocial coping provided a significant interaction effect in SU behavior outcomes. SU behavior did not serve as moderator of pathways between maltreatment and coping behavior. Results reveal that, for foster youth, coping approach may be varied and relate differentially to SU behavior outcomes, with antisocial approaches to coping acting as a buffer for the maltreatment/SU relation. Clinicians and researchers seeking to promote positive and adaptive coping strategies in foster youth should consider the varied role that coping may play with attention given to the situational nature of adaptive coping. Moreover, SU remains an important target for intervention and prevention in youth residing in foster care.

Acknowledgements

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Relations among Maltreatment History, Substance Use, and Coping in Youth in Foster Care: Examination of Moderation Models

Use and abuse of alcohol and illicit drugs by youth in the U.S. is a primary public health concern and a risk factor for morbidity and mortality in adolescents (Centers for Disease Control and Prevention [CDC], 2012; Smith, Branas, & Miller, 1999). Physical health consequences related to substance use (SU) in youth include injury and death (Toumbourou et al., 2007) and increased risk for SU disorders in adulthood (Hingson, Heeren, & Winter, 2006); early SU is predictive of school truancy (Henry, Thornberry, & Huizinga, 2009), school failure (Fergusson, Horwood, & Beautrais, 2003), and dropout (Ellickson, Bui, Bell, & McGuigan, 1998; Lynskey, Coffey, Degenhardt, Carlin, & Patton, 2003) as well as emotional and mental health problems (Fergusson, Horwood, & Swain-Campbell, 2002; Lansford et al., 2008). Given the high financial and social cost (Miller, 2004; National Research Council, 2004), efforts to understand risk and protective factors related to SU in youth are paramount.

Of the risk factors associated with SU, maltreatment in childhood is particularly relevant and has begun to receive more attention in the literature (Singh, Thornton, & Tonmyr, 2011). A recent report released by the US Department of Health and Human Services (2012) revealed that approximately three million children are identified to child protective services each year as potential victims of abuse. Of these youth, 22% were cases of substantiated child maltreatment and represent a population with high risk for adverse behavioral and emotional outcomes. Like SU, maltreatment is considered a significant public health concern due to its negative consequences (Cicchetti & Toth, 2005; Kaplan, Pelcovitz, & Labruna, 1999). Moreover, a review by Simpson and Miller (2002) found that youth exposed to maltreatment were twice as

likely as their non-maltreated peers to use substances more often and were also more likely to be diagnosed with a SU disorder.

Not all youth exposed to maltreatment and residing in out-of-home placements, however, have SU problems. For example, recent research on SU behaviors in middle to high school youth with histories of maltreatment indicates that approximately 70% of physically or sexually abused youth reported lifetime alcohol use and approximately 30% of these youth did not (Hamburger, Leeb, & Swahn, 2008). While it is notable that, in this study, youth with maltreatment had adjusted odds ratios ranging from 1.82 to 2.25 of increased likelihood for SU when compared to youth without maltreatment histories, not all youth with maltreatment histories demonstrate SU behavior. What accounts for why some maltreated youth have SU problems and others do not is an important empirical question. One factor that likely contributes to whether or not youth exposed to maltreatment engage in SU is the coping process involved in youths' responses to maltreatment. Coping processes have been associated with maltreatment (Cicchetti & Rogosch, 2009; Simon, Feiring, & McElroy, 2010) and SU (Eftekhari, Turner, & Larimer, 2004; Windle & Windle, 1996). No study, however, has examined how these constructs operate together. The proposed study will address this gap by examining two models; specifically, if (a) coping behaviors operate as a moderator of the relation between maltreatment and SU, and if (b) SU operates as a moderator of the maltreatment-coping relation.

Maltreatment as Predictor of Substance Use

The relation between childhood experiences of maltreatment and negative behavioral and emotional outcomes is robust (Cicchetti & Toth, 2005), with estimates suggesting exposure to childhood adversity (including exposure to family violence, physical and sexual abuse, and neglect) accounts for 26.1% of the variance in SU disorders for youth aged 13 to 19 years old

(Green et al., 2010). A recent review of literature on adolescent SU and child maltreatment by Tonmyr, Thornton, Draca, and Wekerle (2010) indicated that victims of child abuse are more likely to use substances when compared to those without abuse histories, and this is a finding that persists into adulthood (Felitti et al., 1998; Rheingold, Acierno, & Resnick, 2004).

Specifically, youth with a history of maltreatment were found to be at particular risk, compared to non-maltreated peers, for more frequent use, earlier initiation of SU, higher rates of current use (Lansford, Dodge, Pettit, & Bates, 2010; Silverman, Reinherz, & Giaconia, 1996; Simpson & Miller, 2002), and poor substance use treatment outcomes (Harrison, Fulkerson, & Beebe, 1997; Westermeyer, Wahmanhorn, & Thuras, 2001). Further, when compared to non-maltreated peers, youth with abuse histories are more likely to report advantages to SU, such as SU contributing to a positive self-image, greater relaxation, and lowered feelings of stress (Tonmyr et al., 2010).

Although youth's use of substances is a concern, research suggests that this behavior may be somewhat developmental in nature in that SU behavior is commonly initiated during adolescent years (Clark, 2004) and can progress from experimentation, to more regular use, to problematic use. For example, in a national sample, 42.8% of high-school aged youth (i.e., age 14 and older) reported having drank alcohol at least once in the previous year (Johnston, O'Malley, Miech, Bachman, & Schulenberg, 2015). For youth exposed to maltreatment, however, what may be common risk-taking behavior in most adolescents tends to start at an earlier age, (e.g., initiation prior to age 13 years) perhaps allowing more time or opportunity for SU disorder to develop in adolescence (Butt, Chou, & Browne, 2011). As evidence of this, Hamburger, Leeb, and Swahn (2008) examined initiation of alcohol use in youth who had been exposed to early child maltreatment (abuse before the age of 10 years) and those who had not.

Their findings revealed that early child maltreatment was associated with increased odds of preteen alcohol use. Kaufman and colleagues (2007) followed 76 youth who had been maltreated and 51 demographically-matched control youth for three years finding that maltreated youth initiated alcohol use behaviors, on average, two years earlier than the control group. Moreover, early initiation of SU is associated with increased risk for substance abuse or dependence (Maggs & Schulenberg, 2005) and a greater severity of later SU-related problems (Grant, Stinson, & Harford, 2001; Harrison et al., 1997). Given the strong link between maltreatment exposure and SU in youth, researchers have begun developing theoretical arguments to help explain this relation (Hovestad, Tonmyr, Wekerle, & Thornton, 2011). So far, the common notion is that the developmental psychopathology perspective is likely the best representation of the relation between maltreatment exposure and SU behavior in youth.

Theoretical Explanations: Developmental Psychopathology Framework

Child maltreatment is a non-normative event that interrupts or diminishes a child's ability to develop social and behavioral skills necessary for adaptive behavior (Ayoub et al., 2006; Greenberg, Kusché, & Speltz, 1991). When a child's basic needs for safety are unmet, as in the case of maltreatment, the child may learn that s/he cannot rely on caretakers in times of uncertainty or distress. According to the developmental psychopathology perspective, experiences of needing help and not getting it can become a cycle wherein the child, and then later the teen, adapts to the unavailability of their caretaker and no longer seeks out adults to meet their needs, either because caretakers are unreliable or ineffective (Obradovic, Bush, Stammerdahl, Adler, & Boyce, 2010). As a result, the child may stop seeking adult guidance and reassurance when new challenges arise and try, prematurely, to rely on him/herself when faced with a problem or find alternative and often ineffective methods for reducing emotional distress

(Dodge, 1991; Sroufe & Rutter, 1984). Given the strong correlation between abuse exposure and SU, it is possible that using substances is one of those methods.

Fulfillment of basic needs (e.g., provision of food and water), environments of safety and security, and healthy attachment with caregivers are foundational necessities for healthy child development (Davies, Winter, & Cicchetti, 2006), and experiences of abuse or neglect may represent a breakdown of any or all of these processes (Cicchetti & Lynch, 1995; Cicchetti & Valentino, 2006). For example, Kohlenberg, Nordlund, Lowin, and Treichler (2002) found that lower levels of family attachment were related to higher rates of marijuana use for youth in foster care. Furthermore, studies have shown that presence of engaged and supportive family relationships are predictive of lower SU behaviors in teens (e.g., Averna & Hesselbrock, 2001; Robertson, Xu, & Stripling, 2010), suggesting that healthy attachment, a developmental component unlikely in a maltreated youth's early developmental experience, may be an important protective factor against SU behaviors. Youth exposed to maltreatment may also lack the influence of other protective factors that reduce the likelihood of SU behavior such as consistent parental monitoring (Nash, McQueen, & Bray, 2005; Macaulay, Griffin, Gronewald, Williams, & Botvin, 2005).

Despite the fact that empirical links tying exposure to child maltreatment and subsequent SU behaviors appear to be clear, the relation is not perfect. In a review of the literature on maltreatment and SU, Thompson and Auslander (2007) found rates of 36% to 43% youth with maltreatment histories used substances. While this rate is higher than that of the general youth population (CDC, 2012), it also suggests that 57% to 64% of youth with maltreatment histories were not using substances, bringing the simple, linear relation between maltreatment and subsequent SU behavior into question. Consistent with the notion of multifinality, it is likely

other factors may be involved, which may better account for the variance in outcomes following exposure to child maltreatment (Cicchetti & Rogosch, 1996). While little is known about these intervening factors, one factor that has received increased attention as a potential protective factor or moderator of the maltreatment-SU relation is coping behavior.

Coping and Maltreatment

Coping can be defined as one's response to demands viewed as stressful (Lazarus & Folkman, 1984) and in the context of maltreatment, the effort made by the child's emotional, behavioral, or cognitive systems to manage difficulties or stress related to the maltreatment experience. Historically, the construct of coping has received extensive attention in research, with varying approaches to its conceptualization present in the literature (Carver & Connor-Smith, 2010). For example, Billings and Moos (1981) operationalized coping using a bidirectional approach delineating active coping (directing one's behavior toward or directly at the stressor) and avoidant coping (approaches designed to withdraw the individual from the stressor either physically or cognitively). Others have used dimensions such as emotion-focused (behavior directed at ameliorating negative emotions related to the stressor) and problem-focused coping (behavior aimed at doing something to eliminate the stressor; Lazarus & Folkman, 1984) or primary and secondary control coping (an individual's approach to either exert control over or adapt to the environment; Compas, Connor-Smith, Saltzman, Thomsen, & Wadsworth, 2001).

While the field has yet to accept one way to describe how youth cope, in the context of maltreatment, some research supports the notion that how a child copes is related to the nature of their maltreatment experience. For example, in a study of 84 children with histories of sexual abuse, Chaffin, Wherry, and Dykman (1997) identified four primary approaches to coping: avoidant, internalized, angry, and active/social coping. Results from this study suggested that the

various coping techniques related differentially to characteristics of the children's abuse experiences; specifically, less severe sexual abuse predicted use of active/social coping only and number of abuse events predicted use of angry coping only. Type of coping also appears to matter in the prediction of SU, although the results are mixed (Catanzaro & Laurent, 2004; Eftekhari et al., 2004; Wills & Cleary, 1996; Windle & Windle, 1996). For example, several studies have demonstrated a negative relation between active coping and SU behavior and a positive relation between avoidant coping and SU behavior (Eftekhari et al., 2004; Wills & Hirky, 1996). Alternatively, however, in a study examining the relation between stressors and SU in female adolescent offenders, Robertson et al. (2010) noted that avoidant coping and active coping were not associated with SU behaviors.

Compas and colleagues (2001) reviewed over 60 studies of coping in youth exposed to stressful life events, revealing a variety of outcomes (both pathological and adaptive) based on the way coping was conceptualized, the type of stressor evaluated, and the type of outcome assessed. Findings from this review revealed that generally, problem-focused and active coping were related to better outcomes (e.g., lower internalizing and externalizing symptoms) following stress events, while emotion-focused and avoidant coping were correlated with maladjustment. However, these findings were not consistent and varied by the type of stressor. Conclusions based on the type of coping that predict specific outcomes may be premature if based on constructs of coping that are overly simplistic. The inconsistencies seen across studies may indicate that more complex systems of measurement of coping are needed and that youth may indeed employ multiple types of coping resulting in a more complicated presentation of coping behavior overall.

Compas and colleagues concluded from their review that coping is a multidimensional construct and further research on coping processes in youth is needed. Specifically, past research tends to ignore the notion that youth employ a variety of coping strategies (i.e., more than one or two) in a variety of different ways (Compas et al., 2001); therefore comprehensive, yet specific measurement of coping behaviors should be included in models examining the role of coping as either an intermediate or outcome variable (Wills, Sandy, Yaeger, Cleary, & Shinar, 2001). Indeed, in reviews of the coping literature, authors have consistently noted the need for more comprehensive approaches to operationalization of the coping construct, with acknowledgement that type of coping does appear to matter in relation to outcomes (Skinner, Edge, Altman, & Sherwood, 2003; Skinner & Zinner-Gembeck, 2007; Spaccarelli, 1994).

Due to the lack of consistent findings relating bimodal representations of coping to outcomes and dissatisfaction with the simplicity of prior approaches to measurement of coping, more recently, multiaxial approaches to coping have been identified, with burgeoning support in the literature (Skinner et al., 2003). Coping, when defined using a multiaxial structure, or a format that allows for multiple types of coping behaviors (beyond just present or absent), can then be examined from a perspective that allows for variability of approaches and may better represent how youth may actually approach problems. Further, multiaxial representations of coping appear to better capture the complexity inherent within the coping construct, such that the interdependent nature between types of coping can be accounted for in the relation between coping and outcomes (Connor-Smith, Compas, Wadsworth, Thomsen, & Saltzman, 2000; Skinner et al., 2003). This allows researchers to identify possible interactions between types of coping that may mask other effects in the models being tested. For example, active and avoidant coping behaviors are sometimes viewed as two extremes of a bimodal construct; one cannot

approach a stressor through use of active coping while also avoiding the stressor through use of avoidant coping. Yet, in reality, individuals may employ some active forms of coping (such as problem-solving strategies) while also engaging in avoidant forms of coping (such as social withdrawal), which suggests that the coping construct cannot be assessed along just one dimension (Connor-Smith et al., 2000; Little, Lopez, & Wanner, 2001; Skinner et al., 2003).

Indeed, theorists have called for research using a more multidimensional approach to coping, and a review of the coping literature noted the need for measurement of hierarchies of actions to adequately assess the construct of coping (Skinner et al., 2003). In one example of this formulation of coping, Lopez and Little (1996) utilized a multiaxial approach to assess coping in youth across four dimensions of behavior: prosocial action, antisocial action, direct action, and indirect action. Prosocial and antisocial actions represent distinct categories of behaviors related to the social orientation of coping approaches, whereas direct and indirect actions correspond to the directedness or focus of the coping activity. This approach allows for delineation of specific pathways between predictors or outcomes and the various approaches to coping, while also accounting for the significant overlap that occurs across the various coping approaches. For instance, one can identify how the use of prosocial, yet active, approaches to coping might relate to lower levels of anxiety (Lopez & Little, 1996). Little and colleagues (2001) tested this model of coping in 318 youth, providing support for a multidimensional structure of coping in mediating effects of behavioral coping approaches and outcomes. This model of coping fits with theory put forth by Dunahoo, Hobfoll, Monnier, Hulsizer, and Johnson (1998), who posited that a multiaxial framework of coping could include one's level of activity, the prosocial or antisocial approach, and the degree of directed action. This way of conceptualizing coping allows for more variability in individual responses to stressors, and it also allows one's response to stress to vary

over time. Finally, it affords researchers a more nuanced perspective on coping behaviors employed, with the ability to account for overlap that may occur across dimensions of coping (e.g., active-antisocial coping or direct-prosocial coping).

Coping as a moderator of the maltreatment – SU relation. Given different kinds of coping are related to different kinds of outcomes for youth exposed to non-maltreatment stress events, it is possible that coping behavior, even when simplistically defined, may also be the intermediate or moderator variable that accounts for the multifinality of outcomes (i.e., SU and non-SU) for youth exposed to child maltreatment. Although no research has examined the specific role of coping directly in literature on the maltreatment – SU relation, emerging evidence suggests that the type of coping response (e.g., indirect versus direct coping) could buffer or intensify the association between stressful life experiences in general and substance use behaviors (Wills & Hirky, 1996). For example, in a school-based study, Wills, Sandy, and Yaeger (2002) assessed protective and vulnerability effects of coping on the relation between negative life events and adolescent SU, and findings revealed support for active coping and avoidance coping acting as moderators in these models. Specifically, the relation between negative life events and adolescent SU was stronger for those individuals exhibiting high avoidance coping when compared to those with low avoidance coping. Additionally, findings indicated pathways were weaker for individuals with high active coping when compared to those with low active coping. These results provide support for the notion that active coping and avoidant coping may demonstrate differential effects in the negative life event and SU relation in adolescents. Further, this study identified avoidance coping as a factor that may relate to problem behavior. Moreover, in a study on drinking and stress in undergraduates, Corbin, Farmer, and Nolen-Hoekesma (2012) found that specific types of problem-focused coping served as

moderators of the stress-drinking relation, with coping behaviors such as behavioral restraint and suppression of competing activities (e.g., setting aside distractions that impair one's ability to manage a stressor) providing buffering effects on the relation between stress and drinking. Alternatively, other forms of problem-focused coping assessed in this study (i.e., active coping and planning coping) were not associated with drinking behaviors.

While most literature suggests that coping behavior might reduce negative outcomes after exposure to maltreatment, other research reveals that coping also can have a stress-exacerbating effect on SU behavior following stressful events (e.g., Laurent, Catanzara, & Callan, 1997). Wills and colleagues (2001) studied stress, coping, and SU in a sample of 7th through 9th grade students finding a factor called "behavioral coping" (which is akin to active coping) to be protective against initiation and escalation of SU behaviors, while forms of what they termed "disengagement coping" (which is similar to avoidant coping) demonstrated risk-enhancing effects for SU behaviors. In a study assessing the relation between stress and young adult SU, Hussong and Chassin (2004) found that active coping buffered the association between stressful life events and SU, whereas avoidant coping intensified the association between stress and alcohol use. These studies indicate that some forms of coping may heighten associations between stressful events and SU behaviors while other forms of coping may reduce these associations, giving further support for the possible role of different types of coping to serving as moderator of the child maltreatment/SU relation. Therefore, while the role of coping as a moderator of the relation between child maltreatment and SU behaviors has not been examined directly, the findings of research on other stress events and SU provide preliminary support for the potential role for coping as a moderating mechanism.

The Complexity of the Coping – SU Relation

Although past research suggests how a child copes with stress is related to their SU behavior, some also have suggested that the distinction between coping and SU is contrived. That is, several researchers have hypothesized that SU may be a *form* of coping (Kilpatrick et al., 2000; Miller & Mancuso, 2004), where the use of substances operates to help the youth avoid the negative emotional responses to or memories of abuse experiences (Boys, Marsden, & Strang, 2001; Simantov, Schoen, & Klein, 2000). While it may be easy to see how coping and SU could be considered the same construct, to date no study has tested the notion that the two constructs are interchangeable, and the correlational methodology of the research linking these constructs thus far limits examination of more complex relations that may exist (Simpson & Miller, 2002). If coping is defined as a response to stressful events and SU is solely a form or indicator of coping, then SU would only occur after a stressor. This is not always the case as several studies have identified SU behaviors in youth occurring outside the context of negative life experiences, with negative life events and emotional distress only accounting for a portion of the variance in youth SU behavior (Moran, Vuchinich, & Hall, 2004; Wills et al., 2002).

Moreover, in a review of 82 research articles on motives for drinking in adolescents, Kuntsche, Knibbe, Gmel, and Engels (2005) reported that across studies the majority of youth reported drinking for social or enjoyment reasons (e.g., one study reported 80% of youth drank for enjoyment purposes) and the minority reported use of alcohol for coping reasons alone (e.g., one study reported only 2% of college students indicated they drank to manage feelings of worry or shyness). A study on a community sample of 13 to 16-year olds by Bradizza, Reifman, and Barnes (1999) revealed that youth noted social and coping motives for their drinking behavior, with social motives providing a better prediction of misuse of alcohol over time.

Given the variety of possibilities for motivation for SU behavior in youth, the assumption that SU behavior is always a form of coping may be overly simplistic. Further, adherence to this perspective prevents understanding of how SU and coping as unique constructs may interact. While it may be that SU and coping behaviors overlap in some ways, at this point it is unclear if that overlap would be due to problems in measurement or research methodology. Examination of how they perform in a model concurrently would allow for an accounting of shared variance while also differentiating how their unique variance may interact. Therefore, efforts to further understand this relation gives rise to a test of a moderation model depicted in Figure 1.

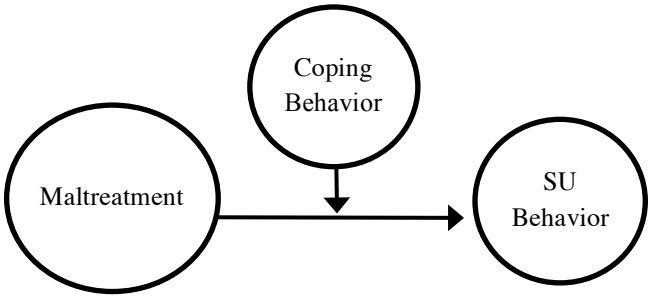

Figure 1. Coping as a moderator of the relation between maltreatment and SU.

Substance use as a moderator of maltreatment and coping. From an alternative perspective, SU is known to impact one's ability to cognitively process experiences (Roper, Dickson, Tinwell, Booth, & McGuire, 2010), manage one's emotions (Windle & Davies, 1999), and make healthy life choices (Levy, Sherritt, Gabrielli, Shrier, & Knight, 2009), which, among other things, are central to recovery following maltreatment. If one avoids memories of the past or difficult emotions by getting drunk or high, a behavior commonly hypothesized to be a method of coping in victims of maltreatment (Rothman, Edwards, Heeren, & Hingson, 2008), the ability to address abuse experiences and manage emotions related to them becomes impaired. Subsequently, SU behavior may interfere with the process of coping following negative experiences. Indeed, higher levels of SU behaviors likely impact the relation between exposure

to maltreatment and the type (e.g., direct versus indirect) and level of coping strategy employed. For example, a youth prone to SU behavior may be more likely to utilize indirect strategies of coping, such as thinking about other things, something perhaps easy to do when intoxicated, rather than use direct strategies of coping, such as trying to resolve problems, something perhaps difficult to do when intoxicated. Studies on coping and SU behaviors, however, rarely examine coping as a construct separate from SU behavior (Hasking & Oei, 2008). SU behavior is most typically examined as an outcome variable and rarely as a predictive or interaction variable related to other outcome variables despite its association with other maladaptive behaviors such as risky sexual behaviors (Fergusson & Lynskey, 1996; Levy et al., 2009). Limiting our examination of SU behavior to only an outcome variable or correlate may preclude our understanding of important interactions that happen over time in youth who use substances.

Subsequently, the influence of SU behaviors on types of coping has not been examined, and understanding of how SU may operate as a moderator of the relation between maltreatment and coping remains as a gap in the literature. Given that higher levels of SU impair processes necessary for particular types of coping responses (e.g., prosocial, direct coping), it is possible that SU moderates the relation between maltreatment and coping behaviors (See Figure 2).

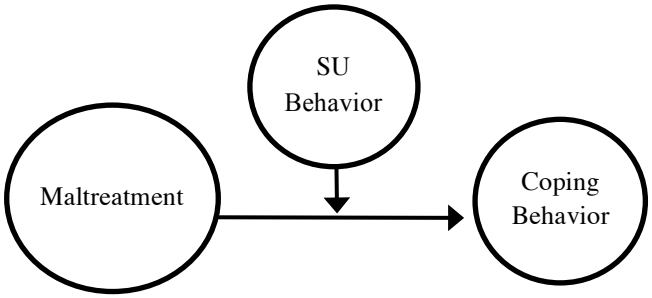

Figure 2. SU as a moderator of the relation between maltreatment and coping.

The Complexity of the Maltreatment Construct

Similar to coping, maltreatment is a complicated construct that can be conceptualized in a variety of ways. The influence of exposure to maltreatment in childhood on later child development has been explored extensively in the literature, with effects related to maltreatment factors, such as type (English, Upadhyaya, et al., 2005), chronicity (English, Graham, Litrownik, Everson, & Bangdiwala, 2005), severity (Litrownik et al., 2005), or age of onset (Thornberry, Ireland, & Smith, 2001).

Although the link between maltreatment in childhood and later substance use is established, pathways related to risk and protection for SU behavior and other negative outcomes following maltreatment have yet to be clearly delineated (Tonmyr et al., 2010). Prior research has indicated specific forms of abuse may be associated with SU, although the found associations vary study to study. For example, Taussig (2002) explored risk behaviors following physical abuse, sexual abuse, and neglect; her research indicated that a history of neglect was a significant predictor of SU, while physical abuse and sexual abuse were not. Conversely, Moran and colleagues (2004) found that both physical and sexual abuse were associated with increased odds for SU behavior in youth when compared to non-abused peers. Finally, research by Wall and Kohl (2007) revealed that odds for SU were lower in youth experiencing neglect than youth experiencing physical abuse.

In a study by Harrison and colleagues (1997) on 6th, 9th, and 12th graders, findings revealed that youth who noted histories of sexual or physical abuse were more likely to have used drugs, with an increased risk noted in youth who had experienced more than one form of maltreatment. Moran et al.'s (2004) study provided similar results suggesting that simple operationalization of maltreatment by type may be overly simplistic in identifying the relation

between maltreatment and SU. Further, categorization of youth by maltreatment type may be a poor representation of their actual experiences given that youth who experience one type of maltreatment are likely to also have experienced other types (Herrenkohl & Herrenkohl, 2009). Thus, our current understanding of the complexity of maltreatment as well as varied findings in how maltreatment type relates to SU behaviors in youth suggests that a broad, more-inclusive approach to conceptualization of maltreatment that accounts for other characteristics (such as severity) to understanding the path between maltreatment and subsequent SU is warranted (Butt et al., 2011; English, Upadhyaya, et al., 2005). This method would consider information on type of abuse as well as the severity and chronicity of abuse, in line with prior research recommendations (English, Upadhyaya, et al., 2005).

Limitations of Past Research and the Current Study

Despite a growing literature examining the maltreatment/SU relation and the possible buffering role of coping, problems remain with the operationalization of variables, examination of multidimensionality of constructs, and potential varied role that each factor may play, within this field of study. While associations between child maltreatment, SU behaviors, and coping have been identified in prior research, no study to date has examined these three constructs concurrently and how coping and SU behavior may moderate the impact of maltreatment in youth.

Furthermore, research investigating the relations between these factors has demonstrated significant limitations in methodology. For example, most of the research in this area is cross-sectional and correlational, which precludes the ability to identify more complex relations such as moderating roles that SU and coping behavior may play. Further, very little research addresses the role of coping related to SU and maltreatment in youth, and regularly SU behavior is simply

described as a form of avoidant coping. This project will test relations among maltreatment, SU behaviors, and coping in moderation models that utilize multiple time points of data to capture relations that occur over time.

Additionally, much of the literature on maltreatment and SU in youth has used a simple one- or two-item question assessing maltreatment history as well as SU behavior (Tonmyr et al., 2010). Often maltreatment history is identified as just one or two types of abuse (i.e., physical abuse or sexual abuse). SU behavior is commonly identified as present or absent, with little attention given to type of substances used or severity of use. In this study, maltreatment will be identified through youth self report on four types of maltreatment (sexual abuse, physical abuse, psychological abuse, and neglect) indicated by a number of questions for each type of abuse (i.e., 12 to 26 items per maltreatment type). SU behavior will be identified through several items of self-report, including a range of substance types, frequency of use, and substance use-related problems. Thus, the present study will contribute to the field through use of more comprehensive measures of SU behavior and maltreatment.

Similarly, while research has provided a foundation for study of coping as a moderator in the maltreatment/SU behavior relation, prior work demonstrates the need for additional study examining a more complex approach to coping that also includes differentiation between coping types. The presence of multiple coping approaches (e.g., direct, prosocial coping) may obscure moderation relations, with the strength of the moderation being reliant on differing types of coping strategies employed (Wills et al., 2001). Laurent and colleagues (1997) noted a stronger moderating effect between levels of stress and problems with alcohol for adolescents who employed more avoidant coping behaviors, whereas this same relation did not reach statistical significance when problem-focused coping was examined as a moderator. Therefore, models

utilizing simplistic formulations of coping as a unidimensional construct are not sufficient in attempts to capture the true moderation role coping may have. The pathways between coping, maltreatment, and SU are complicated, suggesting that differing types of coping may provide different moderation effects on the relation between maltreatment and SU. The present study will address this gap and test a model that addresses this complexity by utilizing a formulation of coping that is multiaxial.

The purpose of the present study is to address these gaps in the literature by testing two models of the relations between maltreatment, SU, and coping while also accounting for the complexity inherent within each factor. Additionally, by including self-report from a sample of youth residing in foster care, the present study will be able to ensure a first-hand report of current SU, coping behaviors, and prior maltreatment experiences. To study the interaction between maltreatment, coping, and SU, two models of moderation will be assessed: 1) a model of maltreatment predicting SU with coping strategies as a moderator (Figure 1) and 2) a model of maltreatment predicting coping strategies with SU as a moderator (Figure 2). Prior to model testing, the measurement model for each of the latent constructs (coping and SU behavior) will be examined to ensure adequate model fit and representation of the construct. Based on prior research and theoretical underpinnings, the following hypotheses will be tested:

Hypothesis 1: Maltreatment history will be positively associated with SU behavior.

Hypothesis 2: Maltreatment history will be significantly associated with coping behaviors.

Hypothesis 3: Type of coping behavior reported will serve as a moderator of the maltreatment/SU behavior relation.

Hypothesis 4: SU behavior will serve as a moderator of the maltreatment/coping relation.

Methods

Participants

Participants were 210 youth who were currently enrolled in foster care. The gender divide of the sample was approximately equal (48% female), with an average age of 12.71 years (*SD* = 2.95 years). Youth were primarily Black/African American (35%), with White/Caucasian (27%) as the next most commonly endorsed race, followed by Multiracial (23%), and Other (15%). Youth either resided in a residential facility (32%) or a foster home (68%) setting. Of the youth in this project, 46% were reported to be currently in treatment for psychological problems.

A large proportion (77%) of participants for the project were enrolled in the SPARK (Studying Pathways to Adjustment and Resilience) project, and to ensure adequate power to test the current study aims, an additional 49 participants were enrolled using similar criteria and procedures. Inclusion criteria for the SPARK project were: 1) being age eight years or older, 2) demonstrating an IQ of 70 or above, and 3) residing in out-of-home care for at least 30 days. The additional youth surveyed for this project were identified primarily through residential facilities. Attempts were made to access known youth with SU problems, but, in fact, these youth were not well identified by the Children's Division (CD). Alternative approaches through calling to enroll youth with known SU-related diagnoses did not yield any additional participants. Given that the measures included in the SPARK project were intended for youth with average intelligence, any youth with a history of an Autism or Mental Retardation diagnosis (via caregiver report) were excluded from the study. The Kauffman Brief Intelligence Test (K-BIT) also was administered as an IQ screener to identify potentially ineligible participants. Additionally, the project only included foster youth who have completed any necessary forensic interviews to prevent any complications with ongoing criminal investigations. The SPARK

project surveyed youth at three time points (baseline, 3-month follow up, and 6-month follow up), however study aims only required two time points of data for the analyses.

Procedures

All child participants were in the legal custody of the State of Missouri Department of Social Services, CD. The CD for Jackson County, MO assisted research project staff in identification of eligible participants. A list of all youth enrolled in Jackson County foster care was provided to the SPARK project research team by CD. Recruitment of participants involved several strategies including mailings and calls to foster families, referrals from past participants in the SPARK project, and advertisements in foster parent newsletters and on list-serves (see Appendix A for a SPARK recruitment flyer). Interested foster families or staff supervising youth residing at residential facilities were screened for eligibility, given a thorough explanation of the project and the participation process, and then scheduled for a data collection appointment. Through the SPARK Project, data were collected directly from youth, foster caregivers, teachers, and CD case-files; however, only youth data were used for the present study. Participants recruited for the present study beyond those surveyed through the SPARK Project provided only youth questionnaire data.

As legal guardians of the children enrolled in foster care, the State of Missouri Children's Division and the Jackson County Circuit Court provided permission for consent to participate and a release of information for all youth within their care to participate in the SPARK project. While the CD (via the Jackson County Circuit Court) is the legal guardian for foster youth in Jackson County, MO, and as such, is responsible for consent for research, caregivers also provided informed consent for their own participation (see Appendix B), and foster youth provided informed assent (see Appendix C). The consent form indicated that the nature of the

research was to gather information on stress, protective factors, and behavior of school-age children. Participation was voluntary. The informed consent/assent process involved a complete description of the goals of the study, explanation that participation is voluntary and offered the right to withdraw at any time, and a discussion on risks and benefits of the research, confidentiality, limits to confidentiality, and questions participants may have had. Additionally, foster families were told they would continue to receive all of the services they were entitled to as foster families (and no additional services as a result of participation) and their case managers (or any other DFS administrator) would not be informed if they participated, stopped participating, or choose never to participate in the proposed study. A graduate-level clinical psychology research assistant was responsible for the consent and data collection process (Jackson, Gabrielli, Tunno, & Hambrick, 2012).

Once participants completed the informed consent and assent process, study measures were administered via an Audio Computer-Assisted Self Interview (A-CASI) system. The SPARK project methodology was designed to minimize the likelihood of underreporting as much as possible by using laptop computers. This innovative approach allowed participants to complete survey questions using headphones to listen to the study questions read to them via a computer program. This system ensured questions and responses were confidential and clear to participants who may have had a lower reading ability than would be expected given their age.

Previous research has demonstrated self-report as a viable means for accessing information that may be considered sensitive, and computerized methods are becoming common for this reason (Tourangeau & Yan, 2007). Specifically, research has demonstrated improved accuracy of self-report by youth using this type of technology for research questions related to substance use (Turner, Rogers, Lindberg, Pleck, & Sonenstein, 1998).

As part of the SPARK methodology, youth and caregivers were asked about current harm or danger to self or others and any affirmative responses by the participants was indicated to the research assistant by a flagged items screen at the end of the survey. This screen indicated any problematic items endorsed by the participant that may have required additional follow up (such as current abuse and suicidal ideation or behavior). If the post-data collection review of flagged items indicated any affirmative responses and thus an indication of risk, the research assistant: 1) consulted immediately with the SPARK Project Director, a licensed clinical child psychologist and supervisor for data collection, 2) established a safety plan for the participant, 3) informed the caregiver of risk and assessed for resources available and resources needed, and 4) reported any current abuse to social services and provided the family with referrals for appropriate support services. To ensure participant safety and positive research experiences, a comprehensive, three-part debriefing protocol and a follow-up phone call a day later was conducted by a graduate-level, clinical child psychology student. No child in the SPARK project indicated stress that warranted concern for future participation in the project following completion of the survey, and previous research has demonstrated a lack of negative outcomes following research with questions of a sensitive nature (Hamby & Finkelhor, 2001).

Measures

Demographics. Demographic (i.e., age, gender, ethnicity) and placement history of each youth participant was obtained through questions asked of the youth as well as through identification during data collection events of placement status (see Appendix D for demographic questions).

Maltreatment. Child history of maltreatment was assessed via child self-report. Maltreatment questions are based on the abuse coding procedures identified by The Modified

Maltreatment Classification System (English, 1997), which is a revised version of the Maltreatment Classification System (MCS; Barnett, Manly, & Cicchetti, 1993). The MCS has demonstrated reliability and validity in operationalization of maltreatment experiences (Bolger & Patterson, 2001). Further, English and colleagues (2005) and Litrownik and colleagues (2005) utilized the MMCS system to conduct a study evaluating the impact of chronicity and severity of abuse on outcomes, and both studies provided results indicating that the MMCS formulation of maltreatment was adequate in predicting emotional and behavioral outcomes in youth.

Maltreatment scores were indicated by subscales assessing four primary forms of abuse: physical abuse (e.g., "about how often did someone kick or punch you"; 18 items), psychological abuse (e.g., "about how often has anyone threatened to hurt someone very important to you"; 26 items), sexual abuse (e.g., "about how often did someone touch your private parts or bottom in some way"; 12 items), and neglect (e.g., "about how often did your parents give you enough to eat"; 24 items). If a youth responded in a way that indicated abuse had happened, they received additional questions assessing the frequency and perpetrators of the abuse (see Appendix E for maltreatment questions). Each of the abuse items had been assigned a severity code (1 = least severe, 3 = most severe) based on prior research and expert consultation. For example, prior research suggests that an experience of having one's life threatened (e.g., being shot at with a gun) may be more severe and have more salience for emotional or behavioral outcomes than an experience of physical harm that was not life threatening (e.g., being shoved or pushed) (Litrownik et al., 2005). The director of the SPARK project utilized her prior knowledge of research on child maltreatment, information from the MMCS coding scheme, as well as consultation with experts from the LONGSCAN project to determine how best to assign severity scores to each abuse event. Further, for each abuse item endorsed, the youth participant reported

on how often the event occurred (from never to almost always). Research indicates that chronicity of maltreatment also may influence outcomes in youth (English et al., 2005). The SPARK project has utilized this approach to measurement of the maltreatment construct in a similar sample, with acceptable model fit in predicting behavioral outcomes indicated by the Behavioral Assessment System for Children-2 (CFI = .920, SRMR = .066, RMSEA = .090).

For the purposes of this research project, maltreatment was conceptualized broadly in terms of severity and chronicity, with the various types of maltreatment contributing to each of these factors. Severity of maltreatment was operationalized as an average score of the number of abuse items endorsed, weighted by their severity scores. For example, a youth endorsing two severe events (each weighted with a severity of 3) and two mild events (each weighted with a severity score of 1) received an overall severity score of 2. Chronicity of maltreatment was operationalized as the youth's report of the frequency with which each individual maltreatment event occurred. This value was established through a summation of the frequency of each event. For example, a youth reporting that two events occurred "always" (frequency code of 5) and two events occurred "sometimes" (frequency code of 2) received an overall chronicity score of 12. This chronicity score therefore comprised two frequency indicators: the regularity of the maltreatment events and the number of different types of maltreatment events experienced (see Figure 3).

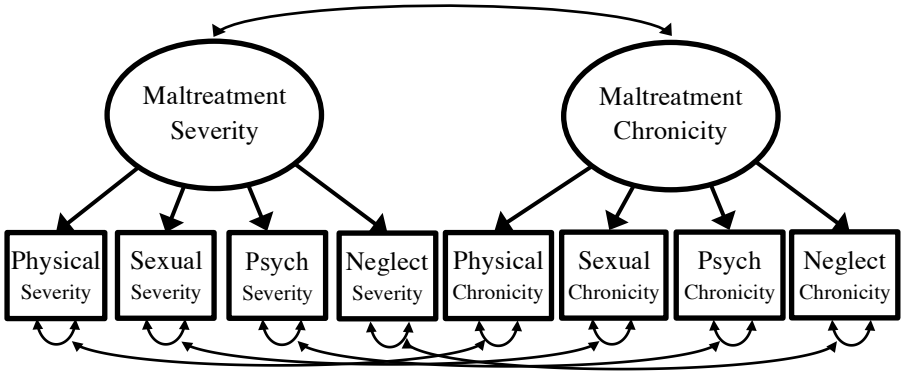

Figure 3. Proposed measurement model of maltreatment.

Comprehensive evaluation of model fit requires use of multiple fit indices to differentiate between good or bad fit. Model fit was estimated using practical fit indices such as the root mean square error of approximation (RMSEA), the comparative fit index (CFI), and the non-normed fit or Tucker Lewis index (TLI). Acceptable levels for these fit indices is greater than 0.90 for CFI and TLI and lower than 0.08 for RMSEA (Browne & Cudeck, 1993; MacCallum et al., 1996). The final measurement model of the maltreatment construct identified in Figure 3 demonstrated excellent fit ($\chi^2_{(15,\, n = 210)} = 19.865$, $p = .177$, RMSEA $_{(0.000 - 0.081)} = .039$, TLI = .990, CFI = .995, SRMR = .026). Residuals across each maltreatment type were correlated to account for the shared error variance within type of maltreatment.

However, the latent constructs of severity of maltreatment and chronicity of maltreatment were correlated at .958, suggestive of significant overlap between the constructs identified. Prior research suggested that constructs with such a high covariance may create model misfit when added to an overarching structural model due to multicollinearity. Therefore, for the present study these two latent constructs were collapsed into one overarching construct of maltreatment, indicated by both severity and chronicity scores across each abuse type. Given the nestedness of these two models, a chi-square difference test was evaluated to determine if the more complex model provided significantly better model fit. This test revealed a nonsignificant difference across models ($\Delta\chi^2_{(1)} = 3.379$, $p = .066$), which indicated that the more parsimonious model using just one latent construct of maltreatment was proficient in capturing the variance explained by the indicators. Thus, the latent maltreatment model identified in Figure 4 was used across structural model tests, which also demonstrated excellent fit ($\chi^2_{(16,\, n = 210)} = 23.244$, $p = .107$, RMSEA $_{(0.000 - 0.085)} = .046$, TLI = .986, CFI = .992, SRMR = .026).

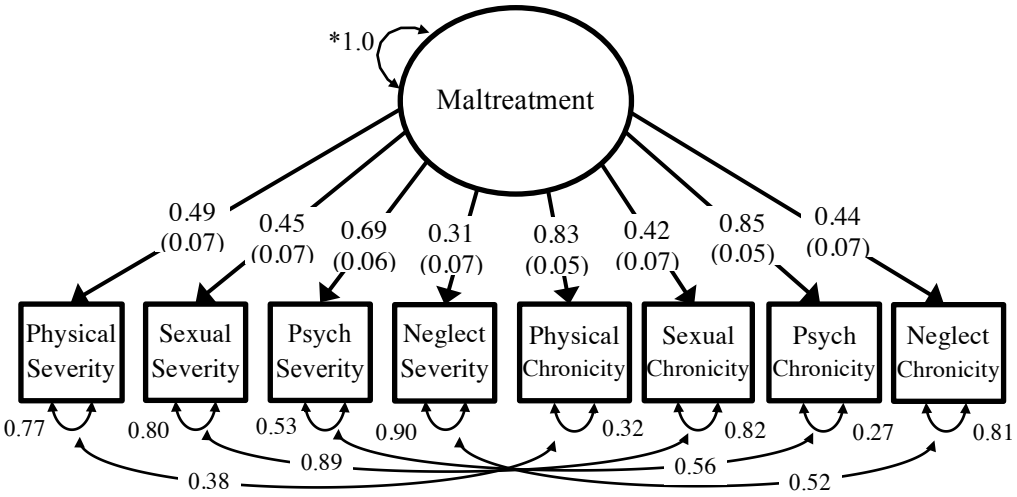

Figure 4. Final measurement model of maltreatment.

Substance Use. Measurement of SU was completed by adding SU-specific questions about use of a range of illicit substances and behaviors associated with dependence on substances to the SPARK project A-CASI survey. Questions about SU were selected with the intent of adding minimal burden to participants in the SPARK project while garnering comprehensive and complete data on SU behaviors to account for aspects of behavior deemed important for outcomes. The construct of SU behavior was indicated by number of different substance types used (e.g., use of marijuana, ecstasy, and alcohol would equal "3"), frequency of use, age of use onset, and an indicator of problematic use. SU behavior was assessed through child self-report on any, past-year, and past-3 month use. Questions asked specifically about use of substances including alcohol, marijuana, cocaine, stimulants, LSD, tranquilizers, pain killers, opiates, PCP, sniffed gases or fumes, and misuse of prescription drugs. These questions were derived from other measures used to assess adolescent substance use such as the Personal Experience Screening Questionnaire (Winters, 1992) and the Drug Use Screening Inventory-Revised (Tarter & Kirisci, 2001). Similar to questions about maltreatment, if children denied any SU the A-CASI program utilized skip logic to avoid participants' answering of redundant questions about SU when they have never used. Youth who reported using substances in the past year and previous

three months were given additional questions about the frequency of use by substance type (e.g., inhalants, opiates, alcohol, prescription drugs not prescribed to them).

Additionally, for the indicator of problems related to use, the CRAFFT, a six-item screening tool commonly used by pediatricians to screen patients for problematic use, was included in the ACASI survey (Knight, Sherritt, Shrier, Harris, & Chang, 2002; Knight, Sherritt, Harris, Gates, & Chang, 2003). The CRAFFT has demonstrated strong predictive validity for identification of substance dependence (positive predictive value = 0.92; negative predictive value = 0.96; Knight et al., 2002), and it has adequate reliability with $\alpha = .68$ (Knight et al., 2002). Additional research on the measure has revealed higher estimates of internal consistency ranging from acceptable to good ($\alpha = .79$, Knight et al., 1999; $\alpha = .81$, Cummins et al., 2003; see Appendix F). Given that this measure of SU behavior was created specifically for this project, prior fit statistics on the measurement model are not available. The proposed measurement model demonstrated acceptable fit ($\chi^2_{(2, n = 210)} = 4.633$, $p = .099$, RMSEA $_{(0.000 - 0.176)} = .079$, TLI = .972, CFI = .991, SRMR = .015), and examination of correlations and modification indices suggested the residual between number of substances used and the frequency of use be freed. This correlated residual, once freed, was statistically significant ($\delta_{3,4} = -.128$, $p = .049$). The final measurement model demonstrated excellent fit in this sample ($\chi^2_{(1, n = 210)} = .248$, $p = .618$, RMSEA $_{(0.000 - 0.145)} = .000$, TLI = .999, CFI = .999, SRMR = .004). See Figure 5 for the final SU model.

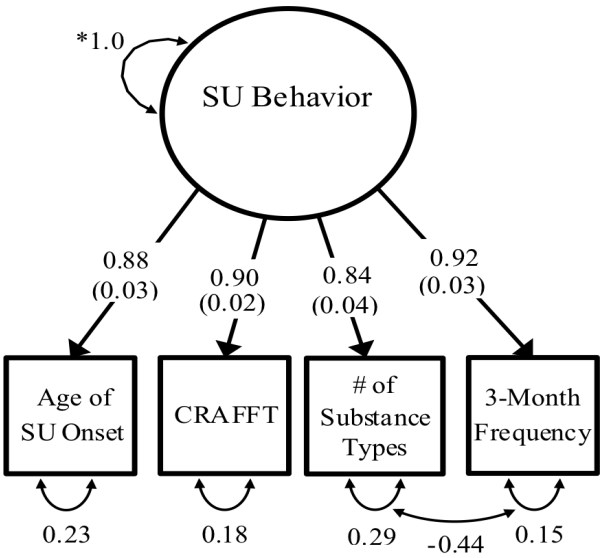

Figure 5. Final measurement model of SU behavior.

Coping Behaviors. Coping behaviors were measured by self-report using a revised version of the Behavioral Index of Strategic Control (BISC; Little et al., 2001; Vanlede, Little, & Card, 2006), specifically designed for use with the sample of foster care youth. For this project, the BISC evaluated use of coping strategies across five frames (social, academic, general stressors, changing schools or families, and family stressors) and four domains: direct action, prosocial action, indirect action, and antisocial action. This measure provides a directional component of coping (indirect and direct) as well as the social component of coping (prosocial and antisocial). The direct action domain assesses one's approach to acting directly towards remediating the stressor (e.g., "When I have problems dealing with things that happen to me, I try to work it out"). Indirect action variables assess one's strategies for reducing the impact of a stressor or avoiding consequences of the stressor (e.g., "When I have problems dealing with things that happen to me, I do something else instead"). The prosocial action domain measures one's approach to management of a stressor through obtaining support from others (e.g., "When I have problems dealing with things that happen to me, I seek out others"). Antisocial action measures one's approach to a stressor through avoidance of support from others (e.g., "When I have problems dealing with things that happen to me, I think others get in my way"). The revised BISC contains 180 items, with 45 items for each domain. Response options for each item are on a Likert scale with scores from 1 (never) to 5 (almost always). Reliability coefficients for this measure in prior research were adequate with α's $\approx$ .80 (Little et al., 2001; see Appendix G).

The measurement model of the BISC in the present sample demonstrated adequate model fit ($\chi^2_{(160,\, n = 210)} = 367.502$, $p < .001$, RMSEA $_{(0.069 - 0.090)} = .080$, TLI = .933, CFI = .944, SRMR = .044). Model indices indicated improved model fit through correlated residuals across indicators of change in living situation and foster family. These residuals were correlated across

each dimension of the BISC measurement model. See Figure 6 for the final BISC measurement model and Table 1 for correlations between latent constructs across coping types.

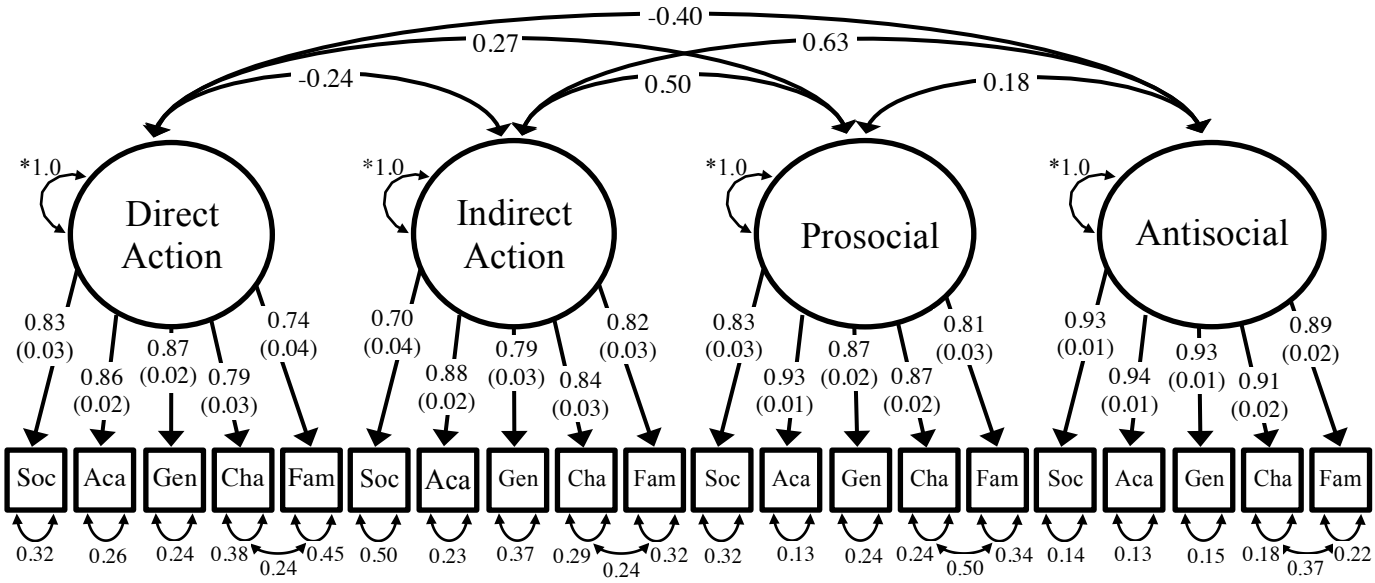

Figure 6. Final measurement model of the BISC.

Table 1

Correlations between Latent Constructs for BISC Coping Model

	Direct Action	Indirect Action	Prosocial Action	Antisocial Action
Direct Action	1.000			
Indirect Action	-0.239**	1.000		
Prosocial Action	0.269***	0.499***	1.000	
Antisocial Action	-0.400***	0.632***	0.181*	1.000

Note. Domains of Direct, Indirect, Prosocial, and Antisocial Action were assessed using the BISC. *** denotes correlations that were statistically significant at the $p < .001$ level. ** denotes correlations statistically significant at the $p < .01$ level. * denotes correlations statistically significant at the $p < .05$ level.

Power Analyses

MacCallum, Browne, and Cai (2006) provided guidelines for power analyses when testing fit of structural equation models and suggested that the degrees of freedom in the models under examination weigh considerably on the power of the analysis. Models with approximately

42 degrees of freedom allow for .80 power to reject two models with a difference in RMSEA of .05. Given the size of the models being tested, a sample size of 160 participants was determined to be sufficient for adequate power (MacCallum, Browne, & Sugawara, 1996). A power curve was plotted to identify the target sample to achieve adequate power (see Figure 7).

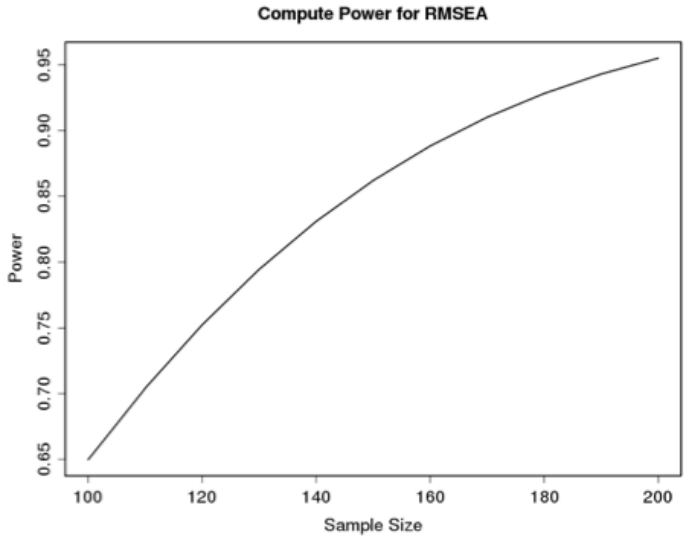

Figure 7. Power curve for analyses conducted.

Results

Preliminary analyses assessed descriptive statistics and the distribution of scores from the study measures. Any child or placement variables that varied systematically with the outcome variable were included as controls in the larger analyses. Participants recruited through the SPARK project were compared to those recruited primarily for this dissertation project, and no significant differences across demographic factors or outcome variables (while also accounting for significant covariate effects) were identified. Due to the use of the A-CASI in survey administration, missing data were limited (i.e., less than 3% missing). Missingness was managed using the full information maximum likelihood (FIML) algorithm available through M*plus* for the structural equation model analysis. This missing data approach is required when using the

Latent Moderated Structural Equations (LMS) method approach to moderation within structural equation modeling (SEM). This technique results in utilization of parameter estimates that are unbiased and accurate for the model estimation analyses (Enders & Bandalos, 2001). Data provided for these analyses had very little missingness with covariance coverage ranging from .848 to 1.00 with the majority of values falling above .900.

Results from descriptive analyses revealed 31% of participants reported SU behavior within the past year. Of youth who endorsed SU, youth had used, on average, approximately three substance types, ranging from 1 to 10. Further, participants who reported SU had a mean CRAFFT score of 3.43 (SD = 1.90), which is an indicator of problematic use based on the recommended cut-off value of 2 when the CRAFFT is used as a screening tool by pediatricians (Knight et al., 2002). Reported age of onset of SU behavior was 11.08 years (SD = 2.21 years).

Examination of mean score differences across youth who reported SU behavior as compared to youth who did not revealed some significant differences on measures of coping and maltreatment. Youth who reported SU did not differ significantly from youth who did not based on mean comparisons on indirect coping (t = -.187; p = .852), prosocial (t = .300; p = .765) or antisocial coping mean scores (t = -.945; p = .346); however, they did differ on direct coping mean scores (t = 2.600; p = .010) with non-substance users having higher direct action coping scores than substance users in the sample. Across all indicators of maltreatment for physical, sexual, and psychological abuse (i.e., severity and chronicity of abuse) youth with SU reported higher scores than youth without SU behavior. Mean differences were significant at the $p < .05$ level for physical abuse severity and chronicity, sexual abuse severity and chronicity, and psychological abuse severity. Mean differences were not significant for psychological chronicity and neglect severity or neglect chronicity. See Table 2 for details on mean score differences.

Table 2

Observed Mean Score Differences for Substance Users and Non-Substance Users

	Full Sample *(SD)*	Non-Substance Users *(SD)*	Substance Users *(SD)*
Maltreatment:			
Neglect Chronicity	87.26 (*16.36*)	88.27 (*16.18*)	84.88 (*16.54*)
Physical Chronicity***	11.32 (*9.93*)	9.35 (*9.30*)	16.09 (*9.79*)
Psychological Chronicity	20.54 (*18.30*)	19.92 (*19.20*)	22.45 (*16.34*)
Sexual Chronicity**	4.29 (*8.48*)	2.93 (*7.13*)	7.42 (*10.40*)
Neglect Severity	0.91 (*0.75*)	0.95 (*0.74*)	0.82 (*0.77*)
Physical Severity***	1.28 (*0.64*)	1.14 (*0.63*)	1.59 (*0.54*)
Psychological Severity*	1.46 (*0.93*)	1.38 (*0.96*)	1.67 (*0.84*)
Sexual Severity***	0.59 (*1.03*)	0.41 (*0.86*)	0.99 (*1.26*)
Coping Behavior:			
Direct Action*	3.63 (*0.71*)	3.73 (*0.72*)	3.45 (*0.63*)
Indirect Action	2.80 (*0.72*)	2.79 (*0.73*)	2.82 (*0.69*)
Prosocial	2.87 (*0.75*)	2.88 (*0.77*)	2.84 (*0.73*)
Antisocial	2.44 (*0.83*)	2.40 (*0.87*)	2.53 (*0.74*)

Note. Mean scores that were statistically significant in difference across substance users and non-substance users are denoted as follows: * $p < .05$, ** $p < .01$, *** $p < .001$.

To assess for the role of potential covariates, each variable was entered into the model separately. Ethnicity, gender, presence/absence of psychological diagnosis, and participation in psychological treatment were not significant contributors to variance in substance use behavior or coping outcomes. Youth age and placement type did systematically vary with SU behavior in this study, and, as such, these factors were included in all model tests as covariates with SU

behavior as the outcome. In models testing coping behavior as the outcome, age and history of treatment were significant covariates included across models (see Table 3 for covariate data).

Table 3

Standardized Loadings and Standard Errors of Covariates Tested for each Latent Outcome

	Direct Action	Indirect Action	Prosocial	Antisocial	SU Behavior
Covariates Tested:					
Age	-0.093 (*0.083*)	0.094 (*0.081*)	0.170 (*0.082*)*	0.083 (*0.077*)	0.308 (*0.065*)**
Placement Type	-0.048 (*0.091*)	-0.026 (*0.090*)	-0.072 (*0.091*)	0.097 (*0.085*)	0.373 (*0.070*)**
Gender	0.085 (*0.074*)	-0.040 (*0.072*)	0.044 (*0.074*)	0.003 (*0.069*)	0.015 (*0.059*)
Psych Diagnosis	0.112 (*0.110*)	-0.074 (*0.106*)	-0.006 (*0.113*)	0.018 (*0.102*)	-0.019 (*0.095*)
Psych Treatment	-0.210 (*0.103*)	0.213 (*0.101*)*	0.010 (*0.106*)	0.035 (*0.097*)	0.050 (*0.099*)

Note. Correlations that were statistically significant are denoted as follows: * $p < .05$, ** $p < .001$.

Independent assessments of the measurement models for the maltreatment, SU behaviors, and coping behaviors constructs were conducted to demonstrate adequate fit with strong factor loadings and associations with other constructs in the model to be tested. Confirmatory factor analyses were conducted on each of the constructs within the foster care sample using an SEM framework to identify the latent constructs for each factor assessed. Measurement models for the maltreatment, coping, and SU constructs were assessed independently. All factor loadings were examined to determine relative weighting and significance of influence on the latent construct. This project utilized the fixed factor method of scale setting, in which the latent variance of each construct is fixed to 1.0. The fixed factor method of identification creates standardized parameter estimates. Each construct had a fixed variance and three or more indicators; therefore the models were overidentified with more observed variance and covariance values available than the number of parameters that were estimated (Kline, 2010).

For each latent construct in the model (i.e., SU, Maltreatment, and Coping) all indicators were significantly correlated at $p < .01$ level. The correlated residuals were freed based on theoretical rationale (i.e., residuals on the BISC across changes in living situation and changing foster families, number of different types of substances used and chronicity of substance use for SU behavior, as well as residuals on Maltreatment across severity and chronicity for each abuse type). The primary freely estimated confirmatory factor analysis (CFA) using maximum likelihood rotation for the CFA of the full model with Maltreatment, Coping, and SU demonstrated excellent fit in the present sample ($\chi^2_{(492, n = 210)} = .861.791$, $p < .001$, RMSEA $_{(0.053 - 0.066)} = .060$, TLI = .925, CFI = .934, SRMR = .073).

Maltreatment Predicts SU

To test hypothesis 1, a structural model of the of baseline maltreatment predicting SU behaviors at follow up was tested using SEM. Longitudinal design was utilized to establish the temporal order of measurement of independent variable and dependent variable. Baseline SU behavior was not controlled for in the model as three-month change in SU was not the outcome variable of interest, and, in some cases, baseline adjustments can lead to spurious correlations (Glymour, Weuve, Berkman, Kawachi, & Robins, 2005). The parameter estimates of pathways between maltreatment and the SU behaviors constructs were examined for statistical significance. Accounting for the influence of both youth age and youth placement type, the baseline model prior to inclusion of the interaction term demonstrated excellent model fit with maltreatment predicting SU behavior ($\chi^2_{(70, n = 210)} = 121.494$, $p < .001$, RMSEA $_{(0.041 - 0.077)} = .059$, TLI = .963, CFI = .971). The final model with covariates of youth age and placement type produced $R^2 = .393$, $p < .001$. Factor loading and R^2 values are provided in Table 4.

Table 4

Factor Loadings and Path Estimates for the Model Test of Maltreatment Predicting SU Behavior

Indicator	Unstandardized: *Loading (SE)*	Standardized: *Loading (SE)*	*p-value*	R^2	R^2 *p-value*
Measurement Model:					
SU: CRAFFT	1.289 (*0.081*)	0.893 (*0.017*)	< .001	0.797	< .001
SU: Age of Onset	2.262 (*0.146*)	0.876 (*0.019*)	< .001	0.768	< .001
SU: Sum of Substance Types	1.208 (*0.084*)	0.845 (*0.025*)	< .001	0.714	< .001
SU: Frequency of Use	0.548 (*0.035*)	0.905 (*0.018*)	< .001	0.819	< .001
Age of Onset with Frequency of Use	-0.145 (*0.035*)	-0.446 (*0.123*)	< .001		< .001
Maltx: Physical Severity	0.329 (*0.053*)	0.517 (*0.072*)	< .001	0.267	< .001
Maltx: Neglect Severity	0.227 (*0.057*)	0.303 (*0.072*)	< .001	0.092	.034
Maltx: Psychological Severity	0.627 (*0.069*)	0.676 (*0.057*)	< .001	0.457	< .001
Maltx: Sexual Severity	0.476 (*0.074*)	0.466 (*0.062*)	< .001	0.217	< .001
Maltx: Physical Chronicity	8.510 (*0.704*)	0.858 (*0.047*)	< .001	0.736	< .001
Maltx: Neglect Chronicity	7.028 (*1.270*)	0.427 (*0.068*)	< .001	0.182	.002
Maltx: Psychological Chronicity	15.132 (*1.311*)	0.825 (*0.048*)	< .001	0.681	< .001
Maltx: Sexual Chronicity	3.598 (*0.612*)	0.428 (*0.064*)	< .001	0.183	.001
Physical Severity with Chronicity	0.900 (*0.428*)	0.324 (*0.109*)	.036		
Neglect Severity with Chronicity	5.504 (*0.908*)	0.519 (*0.055*)	< .001		
Psychological Severity with Chronicity	4.065 (*1.171*)	0.574 (*0.074*)	.001		
Sexual Severity with Chronicity	6.087 (*0.679*)	0.885 (*0.016*)	< .001		
Age with Placement	0.721 (*0.108*)	0.523 (*0.050*)	< .001		
Structural Model:	R^2*value* = .393, *p* < .001				
SU on Maltx	0.203 (*0.088*)	0.158 (*0.067*)	.019		
SU on Age	0.134 (*0.030*)	0.309 (*0.065*)	< .001		
SU on Placement	1.058 (*0.192*)	0.385 (*0.063*)	< .001		

Note. SU represents the SU behavior construct and Maltx represents the Maltreatment Construct. Model Fit: $\chi^2_{(70, n = 210)} = 121.494$, $p < .001$, RMSEA $_{(0.041 - 0.077)} = .059$, TLI=.963, CFI=.971.

Maltreatment Predicts Coping

To test hypothesis 2, a structural model of the pathway of baseline maltreatment predicting coping behaviors at follow up was tested using SEM. In model tests examining maltreatment as a predictor of coping behavior, accounting for the influence of both youth age and youth history of psychological treatment, the baseline model prior to inclusion of the interaction term demonstrated excellent model fit ($\chi^2_{(385,\ n = 210)} = 743.853$, $p < .001$, RMSEA $_{(0.059 - 0.074)} = .067$, TLI = .925, CFI = .934). All predictive paths between maltreatment and coping types were significant at the $p < .05$ level, with the exception of the regression path of Direct Coping on maltreatment ($\beta = -.047$, Z = -.576, $p = .564$). The final pruned model with covariates of youth age and treatment history and maltreatment as a predictor produced $R^2 = .168$, $p = .002$ in antisocial coping, $R^2 = .081$, $p = .031$ in indirect coping, and $R^2 = .052$, $p = .080$ in prosocial coping. The standardized and unstandardized path estimates of the final model are provided in Table 5. The fit indices and relative AIC and BIC values are provided in Table 6.

Table 5

Path Estimates for the Model Test of Maltreatment Predicting Four Types of Coping Behavior

Indicator	Unstandardized: *Loading (SE)*	Standardized: *Loading (SE)*	*p-value*
Direct on Maltx	-0.047 (*0.082*)	-0.047 (*0.082*)	.564
Indirect on Maltx	0.281 (*0.085*)	0.269 (*0.076*)	< .001
Prosocial on Maltx	0.173 (*0.082*)	0.169 (*0.078*)	.030
Antisocial on Maltx	0.461 (*0.089*)	0.419 (*0.067*)	< .001
Direct on Treatment	-0.234 (*0.143*)	-0.113 (*0.068*)	.099
Indirect on Treatment	0.258 (*0.126*)	0.120 (*0.058*)	.039
Prosocial on Age	0.049 (*0.022*)	0.141 (*0.062*)	.023

Note. Direct, Indirect, Prosocial, and Antisocial represent the four types of coping behavior in the coping construct and Maltx represents the maltreatment construct. Model Fit: $\chi^2_{(385,\ n = 210)} = 743.853$, $p < .001$, RMSEA $_{(0.059 - 0.074)} = .067$, TLI=.925, CFI=.934.

Table 6

Results of Model Tests of Maltreatment as a Predictor of Coping Behavior

Model	χ^2	*df*	*p*	RMSEA	90% CI	TLI	CFI	AIC	BIC
Baseline structural model	647.599	332	<.001	.067	.060 - .075	.933	.941	13435.660	13454.871
Structural model with all covariates	855.298	476	<.001	.062	.055 - .068	.921	.933	16258.982	16286.298
Structural model with pruned covariates	743.853	385	<.001	.067	.059 - .074	.925	.934	14763.925	14783.564
Pruned model with all covariates	855.485	561	<.001	.061	.055 - .068	.921	.933	16257.170	16284.307
Pruned model with significant covariates[a]	744.184	386	<.001	.066	.059 - .074	.926	.934	14762.257	14781.717

Note. [a] Selected as best model based on fit indices and AIC/BIC value comparisons

Coping as Moderator of Maltreatment and SU

The Latent Moderated Structural Equations (LMS) method was utilized to estimate the moderation models, which is the most appropriate approach given the continuous latent variables used as moderators in these analyses (Klein & Moosbrugger, 2000; Moosbrugger, Schermelleh-Engel, & Klein, 1997). This approach accounts for the non-normality present in the distributions of product terms of indicators used to create the moderator construct. For each moderation model, youth report of maltreatment experiences at Time 1 was included. For SU behavior outcome models, substance use reported at Time 2 was utilized for the SU behavior construct and Time 1 data were used for the coping behaviors construct. This allowed for the contextual effect of coping behaviors to exert its potential influence on the maltreatment/SU behavior relation. Each type of coping was assessed in a separate moderation model.

In models examining direct action coping, indirect action coping, and prosocial coping as moderators, the interaction terms (i.e., coping X maltreatment) were nonsignificant. This result suggests that these types of coping did not serve as moderators of the relation between

maltreatment and SU behavior, and, therefore, baseline models that did not include the interaction term would serve as better representations of the data. Moreover, assessment of -2loglikehood (-2LL) difference across moderation models as compared to baseline models revealed nonsignificant values, which suggests the more parsimonious models without the interaction term provided adequate information for variance explained in the SU behavior outcome. Alternatively, the model with antisocial coping as a moderator revealed a significant interaction term, and the -2LL difference test comparing the moderating model to the baseline model was significant. The following information provides specific details on the outcomes of the test of each type of coping used as a moderator in separate analyses.

Direct Coping. For the direct action coping model, maltreatment and direct coping were significantly correlated (Φ = -.245, Z = -3.120, p = .002). Maltreatment was a significant predictor (γ = .190, Z = 2.119) at the p = .034 level; direct action coping contributed minimally to the model (γ = -.094, Z = -1.162, p = .245). Comparisons of AIC and BIC values across models revealed that the more parsimonious baseline model fit the data as well as the model with the interaction term, and the -2LL test supported this finding with a nonsignificant comparison of values across the two models ($\Delta\chi^2_{(1)}$= .728, p =.394).

Indirect Coping. Examination of baseline linear predictors revealed that for the indirect action coping model, maltreatment was a significant predictor (γ = .155, Z = 2.233) at the $p < .05$ level, whereas, indirect action coping was not (γ = -.006, Z = -.062, p = .927). Moreover, the association between maltreatment and indirect coping was significant (Φ = .205, Z = 2.576, p = .010). When the interaction term was added to the model it was a nonsignificant contributor to the variance explained in SU behavior (ω = -.024, Z = -.213, p = .831). The -2LL test ($\Delta\chi^2_{(1)}$=

.058, p = .810) and comparison of AIC and BIC values suggested that the baseline model with no interaction term provided better fit to the data than the model with the interaction term included.

Prosocial Coping. When prosocial coping was entered into the baseline model, the association between prosocial coping and maltreatment was nonsignificant (Φ = .018, p = .826); however both maltreatment (γ = .156, Z = 2.359, p = .018) and prosocial coping (γ = -.143, Z = -2.485, p = .013) served as significant predictors of SU behavior. When the interaction term was added to the model, it was a nonsignificant contributor to variance in SU behavior (β = -.094, Z = -1.003, p = .316), and comparison of models using the -2LL ratio test revealed that their difference was nonsignificant as well ($\Delta\chi^2_{(1)}$ = 1.784, p = .182). Comparison of AIC and BIC values across the two models also revealed that the baseline model provided better fit to the data.

Antisocial Coping. In the model examining Antisocial Coping as a moderator, the interaction factor was significant (p = .046), which suggests that main effects should be interpreted within the context of the interaction. A graph of the interaction revealed that, as levels of antisocial coping decreased, the strength of the positive relation between maltreatment and SU behavior increased. The main effect for maltreatment was significant (γ = .273, Z = 2.399, p = .016), while the main effect for antisocial coping was not (γ = -.068, Z = -.883, p = .377). The maltreatment and antisocial latent factors were significantly correlated (Φ = .388, Z = 4.654, p < .001). The -2LL Ratio Test revealed that the model with the interaction term provided significantly better model fit ($\Delta\chi^2_{(1)}$= 3.898, p =.048), and AIC and sample-size adjusted BIC values were lower for the model with the interaction term than the baseline model. See Figure 8 for a visual representation of the interaction effect at low and high levels of

antisocial coping; the slope of the relation between maltreatment and SU behavior was higher for individuals reporting lower levels of antisocial coping.

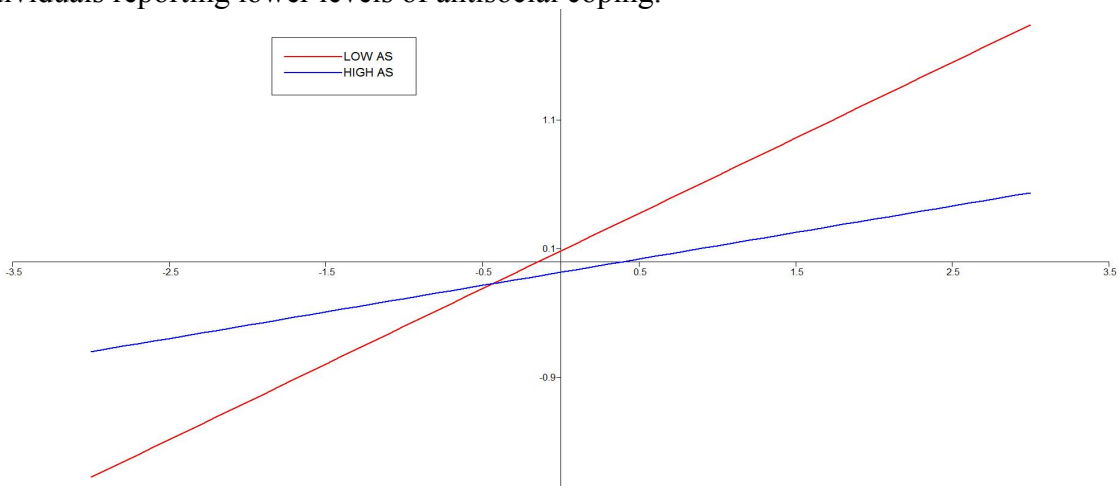

Figure 8. Graph of the interaction effect at low and high levels of antisocial coping.

SU as Moderator of Maltreatment and Coping

For models with coping behavior as outcome, data at Time 2 were used for the coping construct and lifetime use reported at Time 1 was used for the SU construct. This longitudinal approach allowed for the use of substances to be captured prior to the measurement of coping behaviors. Coping behaviors were assessed concurrently with the full measurement model of coping utilized as the outcome variable and maltreatment, SU behavior, and the interaction term as predictors. The best-fitting model indicated significant predictive paths between maltreatment and indirect action, prosocial, and antisocial coping. The interaction term of maltreatment by SU behavior was created and regressed onto coping constructs as well. Results revealed that SU did not serve as a moderator for prosocial (ω = -.025, Z = -.236, p = .813), antisocial (ω = -.084, Z = -.840, p = .401), direct action (ω = .016, Z = .154, p = .877) or indirect coping (ω = .026, Z = .252, p = .801). The -2LL ratio test was utilized to evaluate change in overall model fit with the interaction term included for each path ($\Delta\chi^2_{(4)} = 2.15$, p = .708), and findings demonstrated no significant improvement in model fit with the inclusion of the interaction term. A similar

follow-up analysis was conducted examining a multi-group model of the structural model of maltreatment predicting coping across youth who endorsed any SU behavior compared with youth who did not endorse SU behavior. These results provided additional support for the lack of a moderation effect. Measurement models for each group were constrained to be equal, and each regressive path from maltreatment to each type of coping was constrained to be equal across groups, with change in chi-square values assessed with each additional model constraint. Summary data from these multi-group analyses can be found in Table 7.

Table 7

Comparison of Equated Maltreatment/Coping Models Across Substance Users and Nonusers

Model	χ^2	*df*	$\Delta\chi^2$	*p*	RMSEA	90% CI	TLI	CFI	AIC	BIC
Fully Constrained model [a]	1514.167	844	-----	------	.087	.080 - .094	.877	.881	14680.087	14706.153
Indirect Action Freed	1513.532	843	.635	.426	.087	.080 - .094	.877	.881	14681.452	14707.697
Direct Action Freed	1513.489	842	.043	.836	.087	.080 - .094	.877	.881	14683.409	14709.832
Antisocial Freed	1513.367	841	.122	.727	.087	.080 - .094	.877	.881	14685.287	14711.888
Prosocial Freed	1513.182	840	.185	.667	.087	.080 - .094	.877	.881	14687.102	14713.882

Note. [a] Selected as best model based on fit indices and AIC/BIC value comparisons

SU and Maltreatment as Predictors of Coping

Together, these results suggest that SU behavior did not serve as a moderator of the relation between maltreatment and coping, and, subsequently, the baseline model that does not include the interaction term provides a more parsimonious fit to the data. The final model with maltreatment and SU behavior predicting coping behavior across the four coping behavior types accounting for the influence of youth age and history of treatment demonstrated good fit ($\chi^2_{(501,\ n = 210)} = 953.621$, $p < .001$, RMSEA $_{(0.059 - 0.072)} = .066$, TLI=.918, CFI=.927). Maltreatment remained a significant predictor of variance in indirect action ($\gamma = 0.279$, $Z = 3.519$, $p < .001$),

prosocial (γ = .213, Z = 2.670, p = .008), and antisocial coping (γ = 0.415, Z = 5.810, p < .001), and it was not a significant predictor of direct action coping (γ = -.008, Z = -.100, p = .920), similar to the baseline model. SU behavior was a significant negative predictor of prosocial coping (γ = -.174, Z = -2.140, p = .032) and direct action coping (γ = -.191, Z = -2.439, p = .015), but it was not a significant predictor of antisocial (γ = .030, Z = .409, p = .683) or indirect action coping (γ = .012, Z = .157, p = .875). SU behavior and maltreatment were significantly associated (Φ = .314, Z = 4.209, p < .001).

Discussion

The purpose of the present study was to identify relations between maltreatment, SU behavior, and coping, and to elucidate the possible moderating role of both SU behavior and coping behavior in youth exposed to maltreatment. The results contribute to the existing literature not only by providing new evidence for the interrelations among the study variables, but also in the testing and development of latent measurement models for a rigorous capture of maltreatment, coping, and SU constructs. Furthermore, this research was conducted with youth in foster care, a population known for significant risk of SU behavior and other maladaptive outcomes (Aarons et al., 2008; Pilowsky & Wu, 2006). The results provide a first-time examination of the latent relations between maltreatment, coping behavior, and SU behavior in youth in foster care and suggest that the nature or style of coping matters in predicting which youth in foster care are likely to experience SU and maladaptive outcomes.

Overall, findings revealed that maltreatment served as a significant predictor of SU behavior and coping behavior for this sample. While SU behavior did not moderate the maltreatment/coping relation, SU behavior was a significant predictor of two types of coping, namely, direct action and prosocial coping. Across the four types of coping behavior, only

antisocial coping served as a moderator of the maltreatment/SU behavior relation. Accounting for the effect of maltreatment, only prosocial coping contributed a significant main effect in variance explained in SU behavior.

Youth Substance Use

Results from this study indicate that SU may be more prevalent among youth in foster care than youth in the general population and may start earlier than previously reported in other research. Approximately 31% of youth in the present sample (with a mean age of 12.71 years) reported past-year SU. In other studies of youth SU using computerized screening with *older* samples, past-year SU was identified in 27% of the sample (mean age of 15 years; Harris et al., 2015). Similarly, in the Monitoring the Future study, a nationally representative sample assessing SU, 21% of 8th graders indicated past-year alcohol use and 15% reported past-year use of any illicit substance (Johnston et al., 2015). The results, however, are consistent with other studies finding higher rates of SU behavior in youth in foster care (Fettes, Aarons, & Green, 2013; Pilowsky & Wu, 2006) and youth exposed to maltreatment (Tonmyr et al., 2010).

Moreover, youth in the present sample who reported using substances had a mean age of SU *onset* of 11.07 years, with a few reporting initiation at an age as young as 5 years. While it is understood that adolescence is a time of increased risk for engagement in SU (Johnston et al., 2015), results from this study suggest that, for maltreated youth in foster care, age of SU initiation may be earlier than expected as compared to the general population. This finding is supported by prior research comparing youth with histories of maltreatment to youth without maltreatment histories (Hamburger et al., 2008; Tonmyr et al., 2010). However, little is known about the mechanism of action that drives this apparent earlier age of SU onset in maltreated foster youth. Given that earlier age of SU onset is associated with increased risk for development

of SU problems and SU disorders later in life (Hyman, Garcia, & Sinha, 2006; Maggs & Schulenberg, 2005) and that the bulk of research does not ask about SU onset prior to the age of 12 years (Tonmyr et al., 2010), more information is needed on what influences this difference in age of SU behavior onset between youth who have been maltreated and youth who have not.

Of substance users in this sample, their reported mean CRAFFT score was 3.43. According to the creators of the CRAFFT, any score that falls above the recommended cutoff of 2 indicates a need for additional evaluation of possible SU disorder (Knight et al., 2002). Within the overall sample, 25% of youth had a 2 or higher on the CRAFFT, which was the same rate found in a much older (ages 14 to 18 years old, mean age of 16.07 years) community sample screened with the CRAFFT (Knight et al., 2002). Further, substance users in the present sample had a mean score of 3.10 on the indicator of how many different substance types they had used. This suggests that users in the present sample demonstrated a severity in extent of their use and variability in types of substances used, with the sample average CRAFFT score falling at a level that would be deemed problematic by clinicians. This provides additional support for the notion that youth with exposure to maltreatment and foster care may have more severe SU behavior than youth in the general population (Pilowsky & Wu, 2006). Taken together, findings suggest that youth in foster care with histories of maltreatment represent a population that may be at greater risk for development of problematic SU behavior than youth in the general population.

As expected, youth age and placement type were significant covariates in the SU behavior outcome models, suggestive that SU behavior was more severe for older youth and youth residing in residential placements. This finding is consistent with other studies demonstrating older age was associated with greater SU behavior problems in both foster care (Taussig, 2002) and general populations (Fettes et al., 2013). The role of placement type is more

complicated, as it is unclear if youth residing in residential facilities are there because of their SU behavior and possible treatment opportunities, if they develop more severe SU behavior because of their placement with more substance using peers, or if there are additional confounding factors, such as a history of conduct problems and oppositionality, that relate to both placement in a residential facility and more severe SU behavior. Future research is needed to provide context for these relations and to elucidate possible causal mechanisms for the association between placement type and SU behavior.

Youth Coping Behavior

Congruent with study aims and hypotheses, the multidimensional measurement model of youth coping behavior provided adequate fit to the data. Youths' coping scores were significantly correlated across coping type, however not always in the expected direction. For example, prosocial and antisocial coping were positively correlated, as were prosocial and indirect action coping scores, which suggests that youth with higher latent prosocial coping scores also had higher latent antisocial and indirect coping scores. This finding supports the notion that youths' approaches to coping may be complex and multidimensional, and they may employ a range of coping strategies across different situations and domains of life. This result is consistent with the theoretical perspective of coping suggested by Little and colleagues' (2001) multidimensional model of coping, which posits that coping styles are not independent or mutually exclusive in youth.

Across mean coping scores by coping type, youth who did not use substances only differed from youth who did use substances on direct action coping scores, with nonusers having statistically significant higher direct action coping scores than substance users. This finding is congruent with prior research findings that youth SU behavior may relate negatively to the use of

adaptive coping and positively to the use of maladaptive coping such as avoidance coping (Doron, Trouillet, Maneveau, Neveu, & Ninot, 2014; Lyness & Koehler, 2014). It may be that direct action approaches to coping are not as easily employed for youth already using substances, as direct action coping strategies may require cognitive processes such as problem solving or approach toward conflict. SU behavior would interfere with problem solving, as the cognitive resource required for effective problem solving may be impaired with brain changes associated with SU behavior during youth (Bava, Jacobus, Thayer, & Tapert, 2013; Jacobus & Tapert, 2013; Lisdahl, Wright, Medina-Kirchner, Maple, & Shollenbarger, 2014). Therefore, to the degree that a direct approach to management of problems serves as an adaptive approach to coping, results from the present study support the notion that substance users may employ lower rates of the direct action form of coping. However, the construct of coping is complex, and simple mean score comparisons across groups on each type of coping may be less informative than understanding how maltreatment experiences relate across varied coping outcomes. Additionally, dichotomizing coping approaches into categories of "adaptive" and "maladaptive" may directly conflict with the notion that coping effectiveness is dependent on many situational factors and the adaptive nature of an approach is informed by the situation and outcomes of coping approach employed (Folkman & Moskowitz, 2004).

Main Effect of Maltreatment on SU and Coping

This study is the first of its kind to assess a latent structure of maltreatment indicated by severity and chronicity across four abuse types in predicting SU behavior or coping behavior. Prior research has demonstrated that for youth, particularly youth in foster care, co-occurring experiences across type of maltreatment is more normative than experiences of just one type of maltreatment in isolation (Herrenkohl & Herrenkohl, 2009; Mills et al., 2013). Indeed, in the

present sample the mean number of types of maltreatment endorsed across the four types assessed was 2.81 (*SD* = 1.01) with 89% endorsing more than one type of maltreatment. Therefore, simplistic categorizations of "sexually abused" or "neglected" may be insufficient in capturing the complexity of youths' maltreatment experiences; yet, the vast majority of prior research on child maltreatment and outcomes in youth has focused on only physical or sexual abuse, which is an additional limitation common to SU-specific research (Tonmyr et al., 2010). Defining youth by a single abuse type is problematic, as a recent study by Spinazzola and colleagues (2014) identified that psychological maltreatment accounts for a significant proportion of the variance in mental health outcomes for youth, above and beyond effects of physical and sexual abuse.

Dosage of maltreatment experiences also appears to matter for explaining the variance in outcomes for youth (Hodges et al., 2013), and it is unclear what information is lost about dosage of maltreatment experiences (such as chronicity of abuse) if only the presence of one or two types of maltreatment are assessed. A child may have had one sexual abuse exposure, but years of psychological abuse; whereas another child may have had one experience of sexual abuse but no psychological maltreatment. Furthermore, severity and chronicity of abuse likely varies across given types of maltreatment, so simple counts of number of experiences within type is insufficient. Research on outcomes following child maltreatment should account for co-occurrence across types as well as individual dosage variability within type of maltreatment, which was a method utilized in the design of the present study.

Findings revealed a robust positive predictive main effect of maltreatment, indicated by severity and chronicity of maltreatment across type, on SU behavior in this sample, above and beyond controls of age and placement type, with almost 40% of the variance in the SU behavior

outcome explained. This finding corroborates prior research suggesting that dosage of maltreatment experiences across types of maltreatment influences SU behavior outcomes. The conceptualization of maltreatment in the present study utilized the shared variance of chronicity and severity of maltreatment experiences to indicate the maltreatment construct, which suggests that *dosage* of maltreatment is associated with SU behavior in foster youth. This idea has been considered in prior research. For example, in a cross-sectional study, Moran et al. (2003) demonstrated higher use of alcohol and illicit drugs in youth who had been exposed to both physical and sexual abuse than youth who had experienced either just physical or just sexual abuse. The present study adds to this literature by demonstrating that severity and dosage of maltreatment experiences across types of maltreatment accounts for a significant proportion of the variance in SU behavior for youth in foster care, and the longitudinal design of the study provides additional evidence for the direction of the predictive relation.

Similarly, a good-fitting model was obtained with severity and chronicity of maltreatment as a predictor of coping behavior with significant positive relations between maltreatment and indirect action, prosocial, and antisocial coping but a nonsignificant relation between maltreatment and direct action coping. It is, perhaps, not surprising to see associations between maltreatment and what has been described as less adaptive forms of coping such as indirect action and antisocial coping. However, youth with higher maltreatment scores also reported significantly higher prosocial coping scores. These findings, taken together, suggest that youth exposed to maltreatment report coping behavior that employs a range of different strategies, and, as hypothesized, features of the maltreatment experience may relate differentially to particular types of coping, while accounting for the correlations across coping types. In the same way that a child's full maltreatment experience cannot be categorized just by type of abuse experienced, a

child's coping approach cannot be categorized as simply adaptive versus maladaptive. Youth in the present sample employed a range of coping approaches and maltreatment experience was associated with higher scores across multiple coping types.

Prior research has demonstrated that maltreatment (most commonly identified in a dichotomous manner) relates to coping approach, with maltreated youth demonstrating less adaptive or less socially involved coping approaches (Browne, 2002). Chaffin and colleagues (1997) also identified differing predictive relations of sexual abuse characteristics (e.g., duration, severity) across orthogonal coping approaches (avoidant, internalized, angry, and active/social coping) identified by principal components analysis. The only type of coping that was not associated with abuse characteristics in Chaffin's study was avoidant coping. Findings from the present study build upon this approach by utilizing a multidimensional model of coping predicted by abuse characteristics across maltreatment types. Differences from the present study and Chaffin's findings may be explained by information added in the present study from physical and psychological abuse and neglect. Moreover, use in past studies of simplistic dichotomization of maltreatment or failure to account for the interconnectedness across coping approaches may reduce access to important information about the varied experiences of maltreated youth and the varied behavioral approaches youth can employ. The present study contributes new information by measuring multiple forms of coping behavior and accounting for their interrelated nature while simultaneously accounting for multiple forms of maltreatment experiences.

The above findings offer support for hypotheses one and two with strong, predictive relations of chronicity and severity of maltreatment, across maltreatment types, on SU behavior and coping behavior. These results provide evidence for an alternative way of operationalizing the maltreatment construct when evaluating the impact of these experiences on youth in foster

care; findings reveal that accounting for the complexity of maltreatment experiences may provide important information above and beyond more simplistic approaches such as labeling experiences by type or creating count variables of the number of negative life experiences encountered (Jackson, Gabrielli, Fleming, Tunno, & Makanui, 2015). Namely, shared variance of severity and chronicity of maltreatment experiences across four types of maltreatment was significantly and positively related to indirect action, prosocial, and antisocial coping behavior but not associated with direct action coping. The operationalization of maltreatment in the present study and the strong associations identified across coping and SU behavior represents a meaningful step towards identifying a more comprehensive approach to the shared variance across types of maltreatment and findings suggest that youth with more chronic and severe maltreatment are, in general, reporting higher rates of coping behavior across types.

Moderation Models: Coping

Hypotheses related to moderation were only partially supported in this study. Across the four types of coping, only antisocial coping served as a moderator of the predictive relation between maltreatment and SU behavior, and, contrary to expectations, antisocial coping *buffered* the effect of maltreatment. Analyses probing the interaction effect revealed that at higher levels of antisocial coping the positive predictive relation between maltreatment and SU behavior was weaker than at lower levels. The conceptualization of antisocial coping based on Little and colleagues' (2001) multidimensional model of coping suggests that antisocial coping is distinct from asocial coping in that it is an active coping approach with intentional preference for coping strategies that do not invoke support from others. Prior research suggests that prosocial approaches to coping may relate to more adaptive outcomes, whereas antisocial approaches to

coping may relate to more maladaptive outcomes (Sussman, Dent, & Leu, 2001; Tolan, Gorman-Smith, Henry, Chung, & Hunt, 2002).

Consideration of the present sample provides context for this finding, as many of the youth enrolled in foster care have biological parents who abuse substances, and SU behavior of caregivers may have contributed to termination of parental rights (Vanderploeg et al., 2007). Additionally, youth in foster care may struggle to identify people in their life that promote adaptive behavioral outcomes, and specifically in this research, strategies other than use of substances. Research shows that placements for foster youth, particularly older youth, may not be stable, which gives rise to a transient lifestyle and potential disruption of social networks (Barber & Delfabbro, 2003; Newton, Litrownik, & Landsverk, 2000). For youth whose caseworkers and residential staff may change due to turnover, residences may change due to placement disruption, and placement status may change due to their biological caregivers' meeting or failure to meet certain standards, investment in coping strategies that hinge on relationships may seem, or actually be, futile. Alternatively, for foster youth who demonstrate a range of coping strategies and the ability to find mechanisms of coping that do not rely on support from others, the presence of antisocial coping strategies may be a resource that is protective against SU behavior as they may not be as sensitive to the influence of substance using peers or adults in their lives.

Recent research has suggested that coping approaches may vary based on the type of stressor, and the effectiveness of a particular coping approach for outcomes may vary on the nature of stressors (Tolan et al., 2002). For example, research by Griffith, Dubow, and Ippolito (2000) suggested that youth may use avoidant coping approaches when confronted with family-based stressors, as opposed to other stressors such as peer- or school-related events. Research on

special populations such as homeless youth or inner-city youth revealed differences in expected outcomes based on coping approach as well (Dashora, Erdem, & Slesnick, 2011; Gonzales, Tein, Sandler, & Friedman, 2001). For youth in foster care, coping approach may be influenced by the uniqueness of their life experiences (e.g., severe maltreatment, removal from biological families), and subsequently, models of coping found in general community samples may not be applicable to youth in foster care.

Moreover, this is not the first study to identify what may seem like a counterintuitive finding on youth coping (e.g., Sanchez, Lambert, & Cooley-Strickland, 2013). In a study examining approach versus avoidant coping in adolescent females residing in out-of-home placements, avoidant coping served as a buffer in the relation between childhood trauma exposure (e.g., maltreatment experiences) and adolescent trauma symptoms (Elzy, Clark, Dollard, & Hummer, 2013). Similarly, results from the present study build upon these findings. Specifically, antisocial coping may be more than simply "maladaptive coping" and may functionally represent an adaptive approach in particular circumstances, particularly for youth who have experiences with caregivers who are not adequate resources for socially dependent forms of coping.

Main Effects of Coping on SU

Contrary to expectations, direct action and indirect action coping did not serve as significant predictors of SU behavior in this sample. While prior research investigating the associations between coping and SU behavior in youth has not used this particular multidimensional model of coping or examined the coping/SU behavior relation in the context of maltreated youth specifically, prior studies have demonstrated significant relations between more behavioral or direct approaches to coping and SU behavior in youth. For example, Wills et al.

(2001) found significant predictive associations between behavioral coping (which appears to overlap with the present study's construct of direct action coping) and disengagement coping (which appears to overlap with the present study's indirect action and antisocial coping domains) and youth SU in a school-based sample.

Alternatively, prosocial coping offered a significant negative influence in variance explained in SU behavior in the present sample, above and beyond the influence of maltreatment. This adds complexity to the finding that antisocial coping moderated the maltreatment/SU behavior relation, as it appears that greater prosocial coping is predictive of lower levels of SU behavior in these youth as well. Consistent with past research, in a prospective study with a high-risk sample of adolescents, Sussman and colleagues (2001) found that prosocial coping was a significant negative predictor of later substance dependency.

Overall, these findings suggest that the social domains of coping provide impact on SU behavior outcomes for youth in this sample, whereas the direct and indirect action domains did not offer significant main effects or interaction effects in SU behavior models. Subsequently, intervention and prevention efforts targeting SU in youth residing in out-of-home placements should consider the social aspects of coping, with recognition that youth may employ prosocial and antisocial coping strategies concurrently, with differential effects on SU behavior outcomes. For example, for youth in foster care, more attention may need to be given to education on who would be appropriate resources to support effective prosocial coping (e.g., teachers or well-adapted peers) rather than simply pointing to any adult as a safe resource.

This understanding of the complexity of coping behavior and the way behavior in youth, both adaptive and maladaptive, may interact with environmental influences and change over time fits well within the developmental psychopathology framework of the present study. The idea

that coping behavior may develop in a dynamic way for youth over time and have varied relations with outcomes based on the environment and life experiences of youth is not new (Tolan et al., 2002). Results from the present study provide additional support for the notion that coping behavior may function differentially for youth exposed to maltreatment and residing in foster care, which gives rise to the need for careful consideration of how coping may be supported within this population.

Moderation Models: SU

Results from this study indicated that SU behavior did not serve as a moderator of the maltreatment/coping relation as hypothesized. This was tested in two ways: with SU behavior as a continuous latent variable added as a maltreatment-by-SU-behavior interaction term and as a multiple group comparison of the maltreatment/coping model across substance users and nonusers. Neither approach revealed a significant interaction effect of SU behavior. A number of factors may have contributed to this finding.

One, the sample was relatively young for a SU study, as most youth studies examining the role of SU behavior are conducted with high-school aged (i.e., 14 years and older) youth. It may be that the sample was not old enough or experienced enough with SU behavior for it to exert influence on the relation identified between maltreatment and coping across the timeframe of approximately 3.5 months. Prior research on SU in youth has demonstrated a great range of outcomes based on age of assessment and duration and severity of SU behavior (D'Amico, Edelen, Miles, & Morral, 2008; Lansford et al., 2008; Lynne-Landsman, Bradshaw, & Ialongo, 2010). SU behavior may exert effects later on in a person's developmental trajectory. For example, in three studies with older samples over 15-years of age with mean ages of 15.7 years, 30.5 years, and 32.1 years, marijuana use served as moderator between loneliness and mental

health outcomes. Effects found in the older samples were identified through cross-sectional design, but the effects identified in the sample with mean age of 15.7 years at Time 1 were obtained through longitudinal design with a two-year follow up (Deckman, DeWall, Way, Gilman, & Richman, 2013).

Two, the way SU behavior was operationalized in this study was novel in the use of a latent approach to identifying behavior across a range of substances. It may be that specific substances (e.g., marijuana versus alcohol) function differentially across the maltreatment/coping relation. Indeed, in research examining alcohol specifically, alcohol use served as a moderator in research on revictimization outcomes (Gidycz et al., 2007). Alternatively, in Deckman and colleagues' (2013) studies on marijuana, marijuana use buffered the relation between loneliness and mental health outcomes across three samples. Thus, collapsing information across substance types may have obscured moderating effects across different substance types.

Alternatively, SU behavior may not serve as a moderator, even if the longitudinal timeframe were extended. For youth, SU behavior may be more transient and episodic in nature, thus reducing its impact on any stable or pervasive approaches to life stress, such as coping behavior. Indeed, in the present sample, youth endorsed a wide range of variability across the SU behavior measure, including the number of different types of substance used, age of onset of SU behavior, and frequency of SU behavior. Some youth had only used one substance one time, whereas others had used a wide range of substances on a more regular basis. It may be that a moderation effect would only surface for youths whose SU had consistently been a prevalent part of their experience. Research with samples of older youth with more severe and chronic SU behavior may be needed to identify if SU behavior can serve as moderator of the relation between negative life events, such as maltreatment, and coping behavior.

Maltreatment and SU Behavior Predicts Coping

As SU behavior did not serve as a moderator in model tests, main effects can be interpreted without consideration of the influence of the interaction term. In the structural model with SU behavior added as a predictor of coping behavior in addition to maltreatment, the relations between maltreatment and coping remained consistent with maltreatment sustained as a significant positive predictor of indirect action, prosocial, and antisocial coping and a nonsignificant predictor of direct action coping.

Moreover, significant main effects were demonstrated between SU behavior and coping, with SU behavior having negative predictive relations with direct action and prosocial coping. These paths were in the expected direction, and this model provides additional support for the theory that SU behavior may interfere with coping approaches traditionally viewed as adaptive (Compas et al., 2001). It is logical to assume that use of substances may interfere with one's ability to identify appropriate social resources needed for effective prosocial coping as well as impair one's ability to problem-solve or strategize as needed for effective direct action coping (Grant, Chamberlain, Schreiber, & Odlaug, 2012; Schweinsburg, Brown, & Tapert, 2008; Volkow, Baler, Compton, & Weiss, 2014). If youth engaged in SU behavior as a means of avoiding problems, they may demonstrate lower levels of direct action coping; similarly, if SU behavior served as a means of avoiding problematic social situations, youth may demonstrate lower levels of prosocial coping. While the motivation for SU behavior in the present sample is unknown, this may serve as a useful next step in elucidating these findings.

Limitations of the Current Study

While the present study offers a number of strengths that contribute to the existent literature on maltreatment, SU behavior, and coping in youth, results should be interpreted in

light of study limitations. The primary limitation is use of self-report across measures. Prior research suggests that self-report is an effective means of capturing SU behavior (Nichols et al., 2014), and yet it may be that youth underreported SU behavior to increase likelihood of reunification with biological families or prevent perceived negative implications of disclosure of SU behavior. Similarly, youth may have felt compelled to under-disclose experiences of maltreatment if they perceived under-disclosure would increase their likelihood of reunification with their biological family. However, prior research suggests that youth actually self-report *more* experiences of maltreatment when compared to number of events in their official state case file (Hambrick, Tunno, Gabrielli, Jackson, & Belz, 2014). Also, self-report on coping may not be as effective as behavior indicators of coping approach through experimental design or corroboration through caregiver report of behavioral observation. Youth may not be accurate in reporting on what behaviors they actually employ during a stressful situation, and they may default to reporting based on social desirability bias. Despite these issues, for youth enrolled in foster care, self-report may be the best metric available given the fact that the alternative reporters or present caregivers in their lives are intended to be transitory. Moreover, prior research has depended heavily on self-report as a means of assessing the constructs of coping and SU behavior.

Limited information is available on the longitudinal trajectory of developmental change in coping behavior. Theorists disagree on whether coping is a stable trait versus a more malleable behavior, and, subsequently, its role in longitudinal research has been varied (Compas et al., 2001; Skinner & Zimmer-Gembeck, 2007). Relatedly, in the present sample, youth demonstrated limited variability in their coping scores, with a general tendency to endorse moderate to high use across the different types of coping. The coping measurement model, while demonstrating

adequate fit, was the weakest measurement model of the three latent constructs. If a larger sample was available, an alternative approach could be to identify latent classes of coping approaches utilized within the sample, to allow for cross-type categorizations of coping behavior. This may simply point to the fact, however, that youth employ a range of coping approaches, and these coping approaches may be varied depending on the type of stressor considered.

Within the present sample, the majority of youth were non-substance users. While youth who do not use substances were important contributors to the range of behavior identified, a larger sample of substance users would offer more power to detect more nuanced effects of the severity of SU behavior on outcomes. Also, data were collected within one region of the U.S., and some evidence suggests that SU behavior varies across regions of the U.S. based on access to particular types of substances and trends in overall SU (Substance Abuse and Mental Health Services Administration, 2014). The present sample is representative across demographic factors of youth in foster care across the U.S.; however, results would be more generalizable to youth across the country if data were collected from multiple regions. Future research could supplement these findings through replication with a larger sample size taken from multiple regions of the United States that could afford more complex differentiation of factors relevant to youth in out-of-home placement.

Despite the aforementioned limitations, the present study offered important contributions to the literature on relations across maltreatment, SU behavior, and coping. This study addressed other limitations identified in prior research to advance the science by use of latent measurement models, longitudinal study design, and methods designed to promote accuracy of youth self-report. These study strengths and findings lay preliminary groundwork for future studies.

Directions for Future Research

The findings from the present study point to several important areas for additional study. For example, placement type was a significant covariate for SU behavior outcome models, and this covariate was dichotomized into "residential" placement versus "foster home" placement. However, placement type is, in actuality, a much more complicated factor as youth could reside in group homes, foster homes with biological family members, or foster homes with non-biological family members and their placement type can change multiple times over the course of a longer longitudinal study making classification into one type of placement rather complicated (Jackson et al., 2015; James, Landsverk, & Slymen, 2004; Leathers, 2006). Moreover, residential facilities can vary substantially in their culture, treatment resources, and residential structure, but very little research has been done to operationalize distinctive factors (James, 2011). Future research providing more information for the placement construct such as culture and structure of residential facilities, amount of supervision provided, treatment scope and intensity, number of moves, and duration in placements may inform understanding around why this variable matters for SU outcomes for youth in foster care.

Similarly, history of psychological treatment was a significant covariate for coping outcome models, and little is known about what kinds of treatment these youth received. Furthermore, treatment history was only associated with direct action and indirect action coping domains; it was not associated with prosocial or antisocial coping. Clear understanding of how these predictive paths function across treatment types could provide more insight into treatment and prevention targets for youth exposed to maltreatment as well as provide insights to how treatment may influence coping behaviors in youth.

Antisocial coping was the only type of coping that served as moderator of the maltreatment/SU behavior relation, and, subsequently, further exploration of this coping approach may be useful within youth in foster care. Results from this study suggest that antisocial coping buffers the effects of maltreatment on SU outcomes, but understanding of developmental aspects of how this process unfolds would be useful.

Results from this study suggest that SU behavior may start at a young age for some youth in foster care. The earliest age of onset of reported SU for this sample was age five years. Most research on youth SU is conducted on youth between the ages of 12 and 18 years (Tonmyr et al., 2010). Given that prior research suggests that earlier age of onset of SU behavior serves as a risk factor for later development of SU-related problems, research on high-risk populations should consider inclusion of younger participants as well as identification of age of SU onset to offer better charting of the course of early SU behavior development. This information also could assist in identification of differential associations between predictors and SU outcomes at different stages of use and different stages of youth development.

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Appendix A

Recruitment Flyer

Sign up for the SPARK Project!

SPARK
Studying Pathways to Adjustment and Resilience in Kids

Hello Jackson County fostering families! Would you like to earn a **$60 gift card** AND help us understand what helps children in foster care be resilient?
The **SPARK Project** is the perfect opportunity to do both!

The **SPARK Project** conducts surveys with fostering families and their children. Our project has been approved by partners at the University of Kansas, the National Institutes of Health, the Children's Division, Midwest Foster Care and Adoption Association, and the Jackson County Circuit Court.

We can complete surveys with you at a time and date that works best for your family (nights and weekends are no problem!). We meet families at conveniently located community centers around Jackson County to complete the surveys, and we can also provide child care for your other children while you are completing the surveys.

You and the child participating will receive a gift card each time you participate!

For more information or to sign up, please fill out the form below and mail it back to us. You can also call us at **(913) 897-8454** or email us at **sparkproject@ku.edu.**

If you are interested, please RETURN THIS FORM BELOW AS SOON AS POSSIBLE

YES, I would like to participate in the SPARK Project!

Foster Parent name: _____

Mailing address: _____

Phone number(s): _____

Appendix B

Informed Consent – Caretaker (revised 06/03/2011)

Testing Determinants of Resilience: Child Maltreatment and the Development of Adaptive Behavior

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INTRODUCTION

The Department of Psychology and Applied Behavioral Sciences at the University of Kansas supports the practice of protection for human subjects participating in research. The following information is provided for you to decide whether you wish to participate in the present study. You may refuse to sign this form and not participate in this study. You should be aware that even if you agree to participate, you are free to withdraw at any time. If you do withdraw from this study, it will not affect your relationship with the Children's Division, the Division of Family Services or the services they may provide to you, or the University of Kansas.

PURPOSE OF THE STUDY

The proposed study will test how children exposed to maltreatment develop adaptive behavior. The results could be used to create treatment options to create, enhance, and maintain the resiliency of foster children via therapy groups and individual interventions.

PROCEDURES

I understand that this child and I will be contacted by a representative of this project and asked questions regarding his/her intellectual and emotional adjustment and family environment. As part of the research, I understand that this child and I will complete questionnaires regarding this child's emotional and behavioral functioning, his/her family environment, and exposure to major life events and participate in a brief interview regarding my foster child's experiences. I understand that this child will also participate in a brief, intelligence measure and that a problematic score (i.e., a score of 70 or below) will be reported in order to confirm that the child is receiving appropriate services. I understand that this child's teacher will also be contacted to complete a questionnaire regarding this child's behavior and academic functioning in school. I understand that I can discuss any concerns I have about this project with the coordinator of this research, Yo Jackson, Ph.D. ((785) 864-3581). I understand that this child and I will be asked to complete these forms again approximately every three months for the next six months.

RISKS

I understand that the risks of participating in this study are minimal and that all of these questionnaires have been used with other children and their families with no negative effects reported. Because the study will ask that this child discuss his/her recent history of stress events,

I understand that this may be difficult for this child and I understand that I may need to anticipate the impact of this discussion on his/her well-being.

To minimize any negative effects from participating in the study, the researchers will ask you and this child to participate in a few good-bye sessions before you leave. We ask that you meet with a member of the research team so that you can ask any questions that may arise after participating and to help you manage any concerns you might have regarding the best ways to talk to this child after being in the study. This child will also participate in good-bye session, one with you and one by his/herself and a research team member. We strongly encourage you to not ask this child what he/she shared with the researchers or his/her responses to study questions. Other than scores indicating a flag for Mental Retardation, none of the information you or this child provide to the researchers will be shared with the Children's Division or the Division of Family Services (unless required by law). All of the results will be presented in group-form only so that it will be impossible to link you to your individual responses.

BENEFITS

I understand that my participation in the study will help in developing a better understanding of the factors that help children to maintain good behavior when faced with stress. Also, I understand that I can request a copy of the study's results, which would be mailed to me following the completion of the study.

PAYMENT TO PARTICIPANTS

I understand that I will be compensated $60.00 for the first assessment session, $70.00 for the second session, and $80.00 for the third session. Foster children will receive a $20 gift card for their initial completion of study measures, with the amount of the gift card increasing by $10 at each of following assessment sessions ($20 at time 1, $30 at time 2, and $40 at time 3).

Investigators may ask for your social security number to comply with federal and state tax and accounting regulations.

INFORMATION TO BE COLLECTED

To perform this study, researchers will collect information about you. This information will be obtained from your responses to questionnaires provided by the researchers. Also, information will be collected from the study activities that are listed in the Procedures section of this consent form.

Your name will not be associated in any way with the information collected about you or with the research findings from this study. The researcher(s) will use a study identification number instead of your name.

The information collected about you and this child will be used by Yo Jackson, Ph.D. and her research team. Only members of the research team will be authorized to use and/or disclose the information for data analyses purposes only. The researchers will not share information about

you or this child with anyone not specified above unless required by law or unless you give written permission.
To help us protect your privacy, we have obtained a Certificate of Confidentiality from the National Institutes of Health. With this Certificate, the researchers cannot be forced to disclose information that may identify you, even by a court subpoena, in any federal, state, or local civil, criminal, administrative, legislative, or other proceedings. The researchers will use the Certificate to resist any demands for information that would identify you, except as explained below.
The Certificate cannot be used to resist a demand for information from personnel of the United States Government that is used for auditing or evaluation of Federally funded projects or for information that must be disclosed in order to meet the requirements of the federal Food and Drug Administration (FDA).
You should understand that a Certificate of Confidentiality does not prevent you or a member of your family from voluntarily releasing information about yourself or your involvement in this research. If an insurer, employer, or other person obtains your written consent to receive research information, then the researchers may not use the Certificate to withhold that information.
The Certificate of Confidentiality does not prevent the researchers from disclosing voluntarily, without your consent, information that would identify you as a participant in the research project under the following circumstances. Researchers will voluntarily comply with the requirement by law to prevent harm to self or others.

Permission granted on this date to use and disclose your information remains in effect until the end of the study.

REFUSAL TO SIGN CONSENT AND AUTHORIZATION

You are not required to sign this Consent and Authorization form and you may refuse to do so without affecting your right to any services you are receiving or may receive from the University of Kansas or the Division of Family Services - or to participate in any programs or events of the University of Kansas or the Division of Family Services. However, if you refuse to sign, you cannot participate in this study.

CANCELLING THIS CONSENT AND AUTHORIZATION

You may withdraw your consent to participate in this study at any time. You also have the right to cancel your permission to use and disclose information collected about you, in writing, at any time, by sending your written request to: Yo Jackson, Ph.D., 1000 Sunnyside Ave, Room 2013, University of Kansas, Lawrence, KS 66045. If you cancel permission to use your information, the researchers will stop collecting additional information about you. However, the research team may use the information that was gathered before they received your cancellation, as described above.

All information collected will be reported in group form only – it will not be possible to match personal identity to the responses on the study measures.

PARTICIPANT CERTIFICATION:

I have read this Consent and Authorization form. I have had the opportunity to ask, and I have received answers to, any questions I had regarding the study and the use and disclosure of information about me for the study. I understand that if I have any additional questions about my rights as a research participant, I may call (785) 864-7429 or write the Human Subjects Committee Lawrence Campus (HSCL), University of Kansas, 2385 Irving Hill Road, Lawrence, Kansas 66045-7563, email mdenning@ku.edu.

I agree to take part in this study as a research participant. I further agree to the uses and disclosures of my information as described above.

_____ _____

Print Foster Parent's Name Date

With my signature I affirm that I have received a copy of this consent form.

_____

Foster Parent's Signature

_____

Print Foster Child's Name

Researcher Contact Information

Yo Jackson, Ph.D.
Principal Investigator
Clinical Child Psychology Program
1000 Sunnyside Ave., Room 2013
University of Kansas
Lawrence, KS 66045
(785) 864-3581

Appendix C

Resilience Study

CHILD ASSENT FOR RESEARCH

I, _____, agree to be in a study conducted by

Yo Jackson, Ph.D., at the University of Kansas on how children react to stress and things that help kids adjust well to stress. I agree to be asked a number of questions about my knowledge, feelings, behaviors, and experiences. I will be asked to remember events that may have been unhappy for me. If I become upset, I will talk to someone about it like my caretaker or my teacher.

I also understand that my name or other information that lets people know that the information is about me will not be used. My answers will not be shared with anyone, unless I am in danger of being hurt. If I have any questions about this project, I can ask them at any time.

I understand that I can refuse to be in the study and no one will be upset with me. I also understand that I can stop answering questions at any time and no longer be in the study.

The researcher's signature below indicates that I understand what is on this form and that I am agreeing to fill out other forms.

Researcher Signature certifying completion of assent:

_____ Date: _____

ID #: _____

Appendix D

Demographic Measure

Question Number	***Question***
Dem_001	What is this child's date of birth?
Dem_002	What is this child's age?
Dem_003	What is this child's grade in school?
Dem_004	What is this child's ethnicity?
Dem_005	What is this child's gender?
Dem_006	What is your relationship to this child?
Dem_007	How many adults currently live in this child's home?
Dem_008	What is your marital status?
Dem_009	What is the highest level of education completed by this child's resource mother?
Dem_010	What is the highest level of education completed by this child's resource father?
Dem_011	How many children currently live in your home?
Dem_012	How many biological siblings does this child have?
Dem_013	How many of this child's biological siblings currently live in your home?
Dem_014	How many schools has this child attended?
Dem_015	What sorts of special activities does this child participate in?
Dem_016	Does this child have any major health problems?
Dem_017	How many significant injuries or surgeries has this child experienced?
Dem_018	How often has this child seen the doctor in the last year?
Dem_019	Do you or your spouse or partner have any chronic medical problems?
Dem_020	Has this child ever been diagnosed with an emotional or psychological problem?
Dem_021	What was the diagnosis or diagnoses?
Dem_022	Has this child ever been treated for an emotional or psychological problem?
Dem_023	Is this child currently being treated for an emotional or psychological disorder?
Dem_024	Taking into account all sources of income (including wages, interest, government assistance, child support, and other things), please estimate the total family income on a yearly basis, before taxes.

Appendix E

Maltreatment Measure

Answer options for each question:
1 = Never; 2 = Almost Never; 3 = Sometimes; 4 = Often; 5 = Almost Always

Question Number	***Type***	***Severity***	***Question***
PS_01	Psychological	Mild	IN YOUR LIFETIME, about how often has anyone ever blamed you for their own problems?
PS_02	Psychological	Mild	IN YOUR LIFETIME, about how often has anyone ever made you feel that you couldn't do anything right, no matter how hard you tried?
PS_03	Psychological	Mild	IN YOUR LIFETIME, about how often has anyone ever tried to stop you from having or making friends outside the family?
PS_04	Psychological	Mild	IN YOUR LIFETIME, about how often has anyone ever had you take care of yourself or other people in ways that you didn't feel old enough to do?
PS_05	Psychological	Mild	IN YOUR LIFETIME, about how often has anyone ever kept you home from school when you weren't sick, so you could help them out?
PS_06	Psychological	Mild	IN YOUR LIFETIME, about how often has anyone ever blamed you for other people's problems when they were not your fault?
PS_07	Psychological	Mild	IN YOUR LIFETIME, about how often has anyone ever locked you out of the house on purpose, without arranging for a place for you to go?
PS_08	Psychological	Mild	IN YOUR LIFETIME, about how often has anyone ever humiliated or embarrassed you very badly by putting you down a lot in front of other people?
PS_09	Psychological	Moderate	IN YOUR LIFETIME, about how often has anyone ever called you names or teased you in a way that made you feel really bad about yourself?
PS_10	Psychological	Moderate	IN YOUR LIFETIME, about how often has anyone ever made you feel like they didn't care whether you were safe or healthy?
PS_11	Psychological	Moderate	IN YOUR LIFETIME, about how often has anyone ever threatened to abandon or leave you forever?
PS_12	Psychological	Moderate	IN YOUR LIFETIME, about how often has anyone ever threatened to kick you out of your home, or to have you taken away?
PS_13	Psychological	Moderate	IN YOUR LIFETIME, about how often has anyone ever made you feel like they really didn't love you?
PS_14	Psychological	Moderate	IN YOUR LIFETIME, about how often has anyone ever seemed crazy, like heard voices or seen things that weren't there, in a way that really scared you?
PS_15	Psychological	Moderate	IN YOUR LIFETIME, about how often has anyone ever been so drunk or high that they behaved in ways that really scared you?

PS_16	Psychological	Moderate	IN YOUR LIFETIME, about how often has anyone ever threatened to hurt or destroy something important to you, like a pet or a favorite thing of yours?
PS_17	Psychological	Moderate	IN YOUR LIFETIME, about how often has anyone ever refused to allow you to get help from someone like a counselor?
PS_18	Psychological	Severe	IN YOUR LIFETIME, about how often has anyone ever punished you by not allowing you to sleep, or eat or drink, like for a whole day?
PS_19	Psychological	Severe	IN YOUR LIFETIME, about how often has anyone ever left you for most of a day or night without telling you where they were, or who was going to take care of you?
PS_20	Psychological	Severe	IN YOUR LIFETIME, about how often has anyone ever punished you in an unusual way, like tying you up, or locking you in a closet?
PS_21	Psychological	Severe	IN YOUR LIFETIME, about how often has anyone ever threatened to hurt you badly?
PS_22	Psychological	Severe	IN YOUR LIFETIME, about how often has anyone ever threatened to kill you?
PS_23	Psychological	Severe	IN YOUR LIFETIME, about how often has anyone ever tried to kill himself/herself, or another person in front of you?
PS_24	Psychological	Severe	IN YOUR LIFETIME, about how often has anyone ever made you do something like steal, have sex for money, or carry drugs?
PS_25	Psychological	Severe	IN YOUR LIFETIME, about how often has anyone ever threatened to hurt someone very important to you?
PS_26	Psychological	Severe	IN YOUR LIFETIME, about how often has anyone ever refused to allow you to get help you needed from a doctor?
PH_01	Physical	Mild	IN YOUR LIFETIME, about how often did someone hit you with something less dangerous, like a hairbrush or a belt?
PH_02	Physical	Mild	IN YOUR LIFETIME, about how often did someone kick or punch you?
PH_03	Physical	Mild	IN YOUR LIFETIME, about how often did someone bite you?
PH_04	Physical	Mild	IN YOUR LIFETIME, about how often did someone make a threat to cut or stab you with a knife, razor, fork, or something sharp like that?
PH_05	Physical	Mild	IN YOUR LIFETIME, about how often did someone bruise you or give you a black eye?
PH_06	Physical	Mild	IN YOUR LIFETIME, about how often did someone cause an injury to your eyes, ears, nose, or teeth?
PH_07	Physical	Moderate	IN YOUR LIFETIME, about how often did someone hit you with something dangerous, like a baseball bat or a shovel?
PH_08	Physical	Moderate	IN YOUR LIFETIME, about how often did someone ever push or throw you around, like against a wall or down stairs?
PH_09	Physical	Moderate	IN YOUR LIFETIME, about how often did someone burn or scald you on purpose?
PH_10	Physical	Moderate	IN YOUR LIFETIME, about how often did someone actually cut or stab you with a knife, razor, fork, or something sharp like that?
PH_11	Physical	Moderate	IN YOUR LIFETIME, about how often did someone do something else that physically hurt you badly or put you in danger of being hurt?

PH_12	Physical	Moderate	IN YOUR LIFETIME, about how often did someone cut you in a way that caused you to bleed or need stitches?
PH_13	Physical	Severe	IN YOUR LIFETIME, about how often did someone try to choke, drown, or smother you?
PH_14	Physical	Severe	IN YOUR LIFETIME, about how often did someone threaten to shoot you with a gun?
PH_15	Physical	Severe	IN YOUR LIFETIME, about how often did someone shoot at you with a gun, but didn't hit you?
PH_16	Physical	Severe	IN YOUR LIFETIME about how often did someone break one of your bones?
PH_17	Physical	Severe	IN YOUR LIFETIME, about how often did someone knock you out or make you unconscious?
PH_18	Physical	Severe	IN YOUR LIFETIME, about how often did someone wound you by shooting you with a gun?
S_01	Sexual	Mild	IN YOUR LIFETIME, about how often did an adult or older kid make you look at something sexual, like pictures or a movie?
S_02	Sexual	Mild	IN YOUR LIFETIME, about how often did someone TRY to touch your private parts or bottom in some way, but weren't able to do it?
S_03	Sexual	Mild	IN YOUR LIFETIME, about how often has someone forced you to look at their sexual parts?
S_04	Sexual	Mild	IN YOUR LIFETIME about how often did someone ever spy on your or TRY to look at you without your clothes on when you didn't want them to?
S_05	Sexual	Moderate	IN YOUR LIFETIME, about how often did someone touch your private parts or bottom in some way?
S_06	Sexual	Moderate	IN YOUR LIFETIME, about how often has someone gotten you to touch their private parts or bottom in some way?
S_07	Sexual	Moderate	IN YOUR LIFETIME, about how often did someone TRY to get you to touch their private parts or bottom in some way, but they weren't able to do it?
S_08	Sexual	Moderate	IN YOUR LIFETIME, about how often has someone made you do something else sexual with them or with another person, that we haven't talked about?
S_09	Sexual	Severe	IN YOUR LIFETIME, about how often did someone put some part of their body or anything else inside your private parts or bottom?
S_10	Sexual	Severe	IN YOUR LIFETIME, about how often did someone TRY to put some part of their body or anything else inside your private parts or bottom, but they weren't able to do it?
S_11	Sexual	Severe	IN YOUR LIFETIME, about how often did someone put their mouth on your private parts or made you put your mouth on their private parts?
S_12	Sexual	Severe	IN YOUR LIFETIME, about how often did someone TRY to put their mouth on your private parts or get you to put your mouth on their private parts, but they weren't able to do it?
N_01	Neglect	Mild	IN YOUR LIFETIME, how often did your parents(s) do things with you just for fun?

N_02	Neglect	MIld	IN YOUR LIFETIME, how often were your parent(s) interested in your activities or hobbies?
N_03	Neglect	Mild	IN YOUR LIFETIME, how often did your parent(s) want to know what you were doing if you were not at home?
N_04	Neglect	Mild	IN YOUR LIFETIME, how often did your parents(s) help you to do your best?
N_05	Neglect	Mild	IN YOUR LIFETIME, how often were your parent(s) interested in the kind of friends you had?
N_06	Neglect	Mild	IN YOUR LIFETIME, how often did your parent(s) read books to you?
N_07	Neglect	MIld	IN YOUR LIFETIME, how often did your parent(s) help you when you had problems?
N_08	Neglect	MIld	IN YOUR LIFETIME, how often did your parent(s) praise you?
N_09	Neglect	Moderate	IN YOUR LIFETIME, how often did your parent(s) help you with your homework?
N_10	Neglect	Moderate	IN YOUR LIFETIME, how often did your parent(s) comfort you if you were upset?
N_11	Neglect	Moderate	IN YOUR LIFETIME, how often did your parent(s) make sure you always went to school?
N_12	Neglect	Moderate	IN YOUR LIFETIME, how often did your parent(s) care if you got into trouble at school?
N_13	Neglect	Moderate	IN YOUR LIFETIME, how often did your parents(s) help you when you had trouble understanding something?
N_14	Neglect	Moderate	IN YOUR LIFETIME, how often did your parents(s) care if you did bad things, like shoplifting?
N_15	Neglect	Moderate	IN YOUR LIFETIME, how often did your parent(s) tell you they loved you?
N_16	Neglect	Moderate	IN YOUR LIFETIME, how often did your parents(s) keep the house clean?
N_17	Neglect	Moderate	IN YOUR LIFETIME, how often did your parent(s) make sure you had somewhere safe to play?
N_18	Neglect	Severe	IN YOUR LIFETIME, how often did your parent(s) make sure you bathed regularly?
N_19	Neglect	Severe	IN YOUR LIFETIME, how often did your parent(s) make sure you saw a doctor when you needed one?
N_20	Neglect	Severe	IN YOUR LIFETIME, how often did your parent(s) give you enough to eat?
N_21	Neglect	Severe	IN YOUR LIFETIME, how often did your parents(s) give you enough clothes to keep you warm?
N_22	Neglect	Severe	IN YOUR LIFETIME, how often did your parent(s) have something for you to eat when you were hungry?
N_23	Neglect	Severe	IN YOUR LIFETIME, how often did your parent(s) leave you home alone after dark?
N_24	Neglect	Severe	IN YOUR LIFETIME, how often did your parents(s) leave you home alone during the day?

Appendix F

Substance Use Measure

These questions will ask you about your substance use. Please remember that your answers are kept private and your name is kept separate from your answers.

1. Has anyone who was caring for you (parent or other caregiver) used alcohol or drugs to the point of being drunk or high in front of you? Yes No

2. Have <u>you ever used</u> alcohol or drugs (not ones prescribed for you by a doctor)? Yes No

(If No) {*End of substance use survey questions. End of survey. Skip pattern here.}*

(If Yes) {*Continue with age and use questions}*

3. How old were you when you FIRST used alcohol or drugs? {*single choice from age chart below*}
Select the age that applies to you.

3 years or younger	**4 years**	**5 years**	**6 years**	**7 years**
8 years	**9 years**	**10 years**	**11 years**	**12 years**
13 years	**14 years**	**15 years**	**16 years**	**17 years**
18 years	**19 years**	**20 years**	**21 years**	**22 years**

4. Which of these have you <u>ever</u> used?

You may select more than one type of drug.

4a.	**Alcohol**
4b.	**Cocaine/crack**
4c.	**Marijuana/pot**
4d.	**Stimulants/uppers**
4e.	**LSD/mescaline**
4f.	**Tranquilizers**
4g.	**Pain killers**
4h.	**Heroin/opiates**
4i.	**PCP**
4j.	**Sniffed gases or fumes**
4k.	**Misuse of prescription drugs**
4l.	**Other**

5. How often have you ____ in the past year?

{*Questions presented one at a time. Only receives specific questions about drugs selected from Question 4.}*

		0 times	1-2 times	3-9 times	10-20 times	More than 20 times
5a.	used Alcohol					
5b.	used Cocaine/crack					
5c.	used Marijuana/pot					
5d.	used Stimulants/uppers					
5e.	used LSD/mescaline					
5f.	used Tranquilizers					
5g.	used Pain killers					
5h.	used Heroin/opiates					
5i.	used PCP					
5j.	used Gases or Fumes that you sniffed					
5k.	misused Prescription Drugs					
5l.	used Other substances					

6. How often have you _____ in the past three months?

{*Questions presented one at a time. Only receives specific questions about drugs selected from Question 5.}*

		0 times	1-2 times	3-9 times	10-20 times	More than 20 times
6a.	used Alcohol					
6b.	used Cocaine/crack					
6c.	used Marijuana/pot					
6d.	used Stimulants/uppers					
6e.	used LSD/mescaline					
6f.	used Tranquilizers					
6g.	used Pain killers					
6h.	used Heroin/opiates					
6i.	used PCP					
6j.	used Gases or Fumes that you sniffed					
6k.	misused Prescription Drugs					
6l.	used Other substances					

{*This would be the first double-check screen that would come right after the "past 3 month" SU questions. This is what the screen would look like if the youth had said they had used Alcohol 3 – 9 times and Pain killers 1 – 2 times in the past year. Their answers to the previous questions would fill in the check marks. The data output from this screen would be separate from the data output from the individual questions that preceded this screen. That way we could compare their answers when it is all said and done to determine if they actually changed their answers or not… and if they did change their answers if they ended up indicating more use or less use. The data points could be labeled something like 5a_2 for Alcohol, 5b_2 for Cocaine, etc.*}

5b. The table below shows what substances you said you had used in the past year. If this is not correct, please move the check to the box that applies to you

	0 times	1-2 times	3-9 times	10-20 times	More than 20 times
Alcohol			✓		
Cocaine/crack	✓				
Marijuana/pot	✓				
Stimulants/uppers	✓				
LSD/mescaline	✓				
Tranquilizers	✓				
Pain killers		✓			
Heroin/opiates	✓				
PCP	✓				
Sniff gases or fumes	✓				
Misuse of prescription drugs	✓				
Other	✓				

This would be the second double-check screen that would come right after the individual "3 month" SU questions. This is what the screen would look like if the youth had said they had used Alcohol 3 – 9 times and Pain killers 1 – 2 times in the past 3 months. Their answers to the previous questions would fill in the check marks. The data output from this screen would be separate from the data output from the individual questions that preceded this screen. That way we could compare their answers when it is all said and done to determine if they actually changed their answers or not… and if they did change their answers if they ended up indicating more use or less use.

6b. The table below shows what substances you said you had used in the past year. If this is not correct, please move the check to the box that applies to you

	0 times	1-2 times	3-9 times	10-20 times	More than 20 times
Alcohol			✓		
Cocaine/crack	✓				
Marijuana/pot	✓				
Stimulants/uppers	✓				
LSD/mescaline	✓				
Tranquilizers	✓				
Pain killers		✓			
Heroin/opiates	✓				
PCP	✓				
Sniff gases or fumes	✓				

Misuse of prescription drugs	✓				
Other	✓				

(If Yes to Ever Used question # 2) *{Receives rest of substance use questions below (#s 7 – 13)}*

CRAFFT					
7	C	-	**Have you ever ridden in a CAR driven by someone (including yourself) who was "high" or had been using alcohol or drugs?**	**Yes**	**No**
8	R	-	**Do you ever use alcohol or drugs to RELAX, feel better about yourself, or fit in?**	**Yes**	**No**
9	A	-	**Do you ever use alcohol/drugs while you are by yourself, ALONE?**	**Yes**	**No**
10	F	-	**Do you ever FORGET things you did while using alcohol or drugs?**	**Yes**	**No**
11	F	-	**Do your family or FRIENDS ever tell you that you should cut down on your drinking or drug use?**	**Yes**	**No**
12	T	-	**Have you gotten into TROUBLE while you were using alcohol or drugs?**	**Yes**	**No**

Modified DAP Quick Screener

13. The next set of statements asks if you believe that using alcohol or drugs (not ones prescribed for you by a doctor) has some really important value to you in several different areas.

14	**Using alcohol or drugs helps me build up my confidence around friends.**	**True**	**False**
15	**Using alcohol or drugs helps me deal with angry feelings.**	**True**	**False**
16	**Using alcohol or drugs helps me forget about my problems.**	**True**	**False**
17	**Using alcohol or drugs helps me deal with feeling sad.**	**True**	**False**
18	**Using alcohol or drugs helps me deal with feeling like I have no control.**	**True**	**False**
19	**Using alcohol or drugs helps me deal with feeling scared or worried.**	**True**	**False**
20	**Using alcohol or drugs helps me get along with people in my house.**	**True**	**False**
21	**Using alcohol or drugs helps me deal with moving homes.**	**True**	**False**
22	**Using alcohol or drugs helps me to have more fun.**	**True**	**False**

Appendix G

Behavioral Inventory of Strategic Control (BISC)

Answer options for each question:
1 = Never; 2 = Almost Never; 3 = Sometimes; 4 = Often; 5 = Almost Always

Question Number	***Frame***	***Scale***	***Text (Question, Responses, Intro, etc.)***
001	Social	Direct Action	When I have Problems Making new friends, I try to work it out.
002	Social	Direct Action	When I have Problems Making new friends, I try to figure it out.
003	Social	Direct Action	When I have Problems Making new friends, I try to solve it.
004	Social	Indirect Activity	When I have Problems Making new friends, I do something else instead.
005	Social	Indirect Activity	When I have Problems Making new friends, I do anything else instead.
006	Social	Indirect Activity	When I have Problems Making new friends, I do other things instead.
007	Social	Prosocial Behavior	When I have Problems Making new friends, I seek out others.
008	Social	Prosocial Behavior	When I have Problems Making new friends, I go to others.
009	Social	Prosocial Behavior	When I have Problems Making new friends, I look to others.
010	Social	Antisocial Behavior	When I have Problems Making new friends, I think others can't help me.
011	Social	Antisocial Behavior	When I have Problems Making new friends, I think others just get in my way.
012	Social	Antisocial Behavior	When I have Problems Making new friends, I don't think others are helpful.
013	Social	Direct Action	When I Have Problems Getting a Friend to do Something Together with me, I try to work it out.
014	Social	Direct Action	When I Have Problems Getting a Friend to do Something Together with me, I try to figure it out.
015	Social	Direct Action	When I Have Problems Getting a Friend to do Something Together with me, I try to solve it.
016	Social	Indirect Activity	When I Have Problems Getting a Friend to do Something Together with me, I do something else instead.
017	Social	Indirect Activity	When I Have Problems Getting a Friend to do Something Together with me, I do anything else instead.

018	Social	Indirect Activity	When I Have Problems Getting a Friend to do Something Together with me, I do other things instead.
019	Social	Prosocial Behavior	When I Have Problems Getting a Friend to do Something Together with me, I seek out others.
020	Social	Prosocial Behavior	When I Have Problems Getting a Friend to do Something Together with me, I go to others.
021	Social	Prosocial Behavior	When I Have Problems Getting a Friend to do Something Together with me, I look to others.
022	Social	Antisocial Behavior	When I Have Problems Getting a Friend to do Something Together with me, I think others can't help me.
023	Social	Antisocial Behavior	When I Have Problems Getting a Friend to do Something Together with me, I think others just get in my way.
024	Social	Antisocial Behavior	When I Have Problems Getting a Friend to do Something Together with me, I don't think others are helpful.
025	Social	Direct Action	When I Have Problems Keeping a Good Friend, I try to work it out.
026	Social	Direct Action	When I Have Problems Keeping a Good Friend, I try to figure it out.
027	Social	Direct Action	When I Have Problems Keeping a Good Friend, I try to solve it.
028	Social	Indirect Activity	When I Have Problems Keeping a Good Friend, I do something else instead.
029	Social	Indirect Activity	When I Have Problems Keeping a Good Friend, I do anything else instead.
030	Social	Indirect Activity	When I Have Problems Keeping a Good Friend, I do other things instead.
031	Social	Prosocial Behavior	When I Have Problems Keeping a Good Friend, I seek out others.
032	Social	Prosocial Behavior	When I Have Problems Keeping a Good Friend, I go to others.
033	Social	Prosocial Behavior	When I Have Problems Keeping a Good Friend, I look to others.
034	Social	Antisocial Behavior	When I Have Problems Keeping a Good Friend, I think others can't help me.
035	Social	Antisocial Behavior	When I Have Problems Keeping a Good Friend, I think others just get in my way.
036	Social	Antisocial Behavior	When I Have Problems Keeping a Good Friend, I don't think others are helpful.
037	Academic	Direct Action	When I Have Problems Learning Something New in School, I try to work it out.
038	Academic	Direct Action	When I Have Problems Learning Something New in School, I try to figure it out

039	Academic	Direct Action	When I Have Problems Learning Something New in School, I try to solve it.
040	Academic	Indirect Activity	When I Have Problems Learning Something New in School, I do something else instead.
041	Academic	Indirect Activity	When I Have Problems Learning Something New in School, I do anything else instead.
042	Academic	Indirect Activity	When I Have Problems Learning Something New in School, I do other things instead.
043	Academic	Prosocial Behavior	When I Have Problems Learning Something New in School, I seek out others.
044	Academic	Prosocial Behavior	When I Have Problems Learning Something New in School, I go to others.
045	Academic	Prosocial Behavior	When I Have Problems Learning Something New in School, I look to others.
046	Academic	Antisocial Behavior	When I Have Problems Learning Something New in School, I think others can't help me.
047	Academic	Antisocial Behavior	When I Have Problems Learning Something New in School, I think others just get in my way.
048	Academic	Antisocial Behavior	When I Have Problems Learning Something New in School, I don't think others are helpful.
049	Academic	Direct Action	When I have Problems Figuring out a New Lesson, I try to work it out.
050	Academic	Direct Action	When I have Problems Figuring out a New Lesson, I try to figure it out
051	Academic	Direct Action	When I have Problems Figuring out a New Lesson, I try to solve it.
052	Academic	Indirect Activity	When I have Problems Figuring out a New Lesson, I do something else instead.
053	Academic	Indirect Activity	When I have Problems Figuring out a New Lesson, I do anything else instead.
054	Academic	Indirect Activity	When I have Problems Figuring out a New Lesson, I do other things instead.
055	Academic	Prosocial Behavior	When I have Problems Figuring out a New Lesson, I seek out others.
056	Academic	Prosocial Behavior	When I have Problems Figuring out a New Lesson, I go to others.
057	Academic	Prosocial Behavior	When I have Problems Figuring out a New Lesson, I look to others.
058	Academic	Antisocial Behavior	When I have Problems Figuring out a New Lesson, I think others can't help me.
059	Academic	Antisocial Behavior	When I have Problems Figuring out a New Lesson, I think others just get in my way.

060	Academic	Antisocial Behavior	When I have Problems Figuring out a New Lesson, I don't think others are helpful.
061	Academic	Direct Action	When I Have Problems Understanding New Things in School, I try to work it out.
062	Academic	Direct Action	When I Have Problems Understanding New Things in School, I try to figure it out
063	Academic	Direct Action	When I Have Problems Understanding New Things in School, I try to solve it.
064	Academic	Indirect Activity	When I Have Problems Understanding New Things in School, I do something else instead.
065	Academic	Indirect Activity	When I Have Problems Understanding New Things in School, I do anything else instead.
066	Academic	Indirect Activity	When I Have Problems Understanding New Things in School, I do other things instead.
067	Academic	Prosocial Behavior	When I Have Problems Understanding New Things in School, I seek out others.
068	Academic	Prosocial Behavior	When I Have Problems Understanding New Things in School, I go to others.
069	Academic	Prosocial Behavior	When I Have Problems Understanding New Things in School, I look to others.
070	Academic	Antisocial Behavior	When I Have Problems Understanding New Things in School, I think others can't help me.
071	Academic	Antisocial Behavior	When I Have Problems Understanding New Things in School, I think others just get in my way.
072	Academic	Antisocial Behavior	When I Have Problems Understanding New Things in School, I don't think others are helpful.
073	General Stressors	Direct Action	When I have Problems Dealing With Things That Happen to Me, I try to work it out.
074	General Stressors	Direct Action	When I have Problems Dealing With Things That Happen to Me, I try to figure it out.
075	General Stressors	Direct Action	When I have Problems Dealing With Things That Happen to Me, I try to solve it.
076	General Stressors	Indirect Activity	When I have Problems Dealing With Things That Happen to Me, I do something else instead.
077	General Stressors	Indirect Activity	When I have Problems Dealing With Things That Happen to Me, I do anything else instead.
078	General Stressors	Indirect Activity	When I have Problems Dealing With Things That Happen to Me, I do other things instead.
079	General Stressors	Prosocial Behavior	When I have Problems Dealing With Things That Happen to Me, I seek out others.
080	General Stressors	Prosocial Behavior	When I have Problems Dealing With Things That Happen to Me, I go to others.

081	General Stressors	Prosocial Behavior	When I have Problems Dealing With Things That Happen to Me, I look to others.
082	General Stressors	Antisocial Behavior	When I have Problems Dealing With Things That Happen to Me, I think others can't help me.
083	General Stressors	Antisocial Behavior	When I have Problems Dealing With Things That Happen to Me, I think others just get in my way.
084	General Stressors	Antisocial Behavior	When I have Problems Dealing With Things That Happen to Me, I don't think others are helpful.
085	General Stressors	Direct Action	When I Have Problems Dealing With Things that Bother Me, I try to work it out.
086	General Stressors	Direct Action	When I Have Problems Dealing With Things that Bother Me, I try to figure it out.
087	General Stressors	Direct Action	When I Have Problems Dealing With Things that Bother Me, I try to solve it.
088	General Stressors	Indirect Activity	When I Have Problems Dealing With Things that Bother Me, I do something else instead.
089	General Stressors	Indirect Activity	When I Have Problems Dealing With Things that Bother Me, I do anything else instead.
090	General Stressors	Indirect Activity	When I Have Problems Dealing With Things that Bother Me, I do other things instead.
091	General Stressors	Prosocial Behavior	When I Have Problems Dealing With Things that Bother Me, I seek out others.
092	General Stressors	Prosocial Behavior	When I Have Problems Dealing With Things that Bother Me, I go to others.
093	General Stressors	Prosocial Behavior	When I Have Problems Dealing With Things that Bother Me, I look to others.
094	General Stressors	Antisocial Behavior	When I Have Problems Dealing With Things that Bother Me, I think others can't help me.
095	General Stressors	Antisocial Behavior	When I Have Problems Dealing With Things that Bother Me, I think others just get in my way.
096	General Stressors	Antisocial Behavior	When I Have Problems Dealing With Things that Bother Me, I don't think others are helpful.
097	Being Hurt	Direct Action	When I Have Problems Dealing With Things That Hurt Me, I try to work it out.
098	Being Hurt	Direct Action	When I Have Problems Dealing With Things That Hurt Me, I try to figure it out
099	Being Hurt	Direct Action	When I Have Problems Dealing With Things That Hurt Me, I try to solve it.
100	Being Hurt	Indirect Activity	When I Have Problems Dealing With Things That Hurt Me, I do something else instead.
101	Being Hurt	Indirect Activity	When I Have Problems Dealing With Things That Hurt Me, I do anything else instead.

102	Being Hurt	Indirect Activity	When I Have Problems Dealing With Things That Hurt Me, I do other things instead.
103	Being Hurt	Prosocial Behavior	When I Have Problems Dealing With Things That Hurt Me, I seek out others.
104	Being Hurt	Prosocial Behavior	When I Have Problems Dealing With Things That Hurt Me, I go to others.
105	Being Hurt	Prosocial Behavior	When I Have Problems Dealing With Things That Hurt Me, I look to others.
106	Being Hurt	Antisocial Behavior	When I Have Problems Dealing With Things That Hurt Me, I think others can't help me.
107	Being Hurt	Antisocial Behavior	When I Have Problems Dealing With Things That Hurt Me, I think others just get in my way.
108	Being Hurt	Antisocial Behavior	When I Have Problems Dealing With Things That Hurt Me, I don't think others are helpful.
109	Moving Homes	Direct Action	When I Have Problems Dealing With Having To Move Homes, I try to work it out.
110	Moving Homes	Direct Action	When I Have Problems Dealing With Having To Move Homes, I try to figure it out
111	Moving Homes	Direct Action	When I Have Problems Dealing With Having To Move Homes, I try to solve it.
112	Moving Homes	Indirect Activity	When I Have Problems Dealing With Having To Move Homes, I do something else instead.
113	Moving Homes	Indirect Activity	When I Have Problems Dealing With Having To Move Homes, I do anything else instead.
114	Moving Homes	Indirect Activity	When I Have Problems Dealing With Having To Move Homes, I do other things instead.
115	Moving Homes	Prosocial Behavior	When I Have Problems Dealing With Having To Move Homes, I seek out others.
116	Moving Homes	Prosocial Behavior	When I Have Problems Dealing With Having To Move Homes, I go to others.
117	Moving Homes	Prosocial Behavior	When I Have Problems Dealing With Having To Move Homes, I look to others.
118	Moving Homes	Antisocial Behavior	When I Have Problems Dealing With Having To Move Homes, I think others can't help me.
119	Moving Homes	Antisocial Behavior	When I Have Problems Dealing With Having To Move Homes, I think others just get in my way.
120	Moving Homes	Antisocial Behavior	When I Have Problems Dealing With Having To Move Homes, I don't think others are helpful.
121	Change Schools	Direct Action	When I have Problems Dealing With Having To Change Schools, I try to work it out.
122	Change Schools	Direct Action	When I have Problems Dealing With Having To Change Schools, I try to figure it out

123	Change Schools	Direct Action	When I have Problems Dealing With Having To Change Schools, I try to solve it.
124	Change Schools	Indirect Activity	When I have Problems Dealing With Having To Change Schools, I do something else instead.
125	Change Schools	Indirect Activity	When I have Problems Dealing With Having To Change Schools, I do anything else instead.
126	Change Schools	Indirect Activity	When I have Problems Dealing With Having To Change Schools, I do other things instead.
127	Change Schools	Prosocial Behavior	When I have Problems Dealing With Having To Change Schools, I seek out others.
128	Change Schools	Prosocial Behavior	When I have Problems Dealing With Having To Change Schools, I go to others.
129	Change Schools	Prosocial Behavior	When I have Problems Dealing With Having To Change Schools, I look to others.
130	Change Schools	Antisocial Behavior	When I have Problems Dealing With Having To Change Schools, I think others can't help me.
131	Change Schools	Antisocial Behavior	When I have Problems Dealing With Having To Change Schools, I think others just get in my way.
132	Change Schools	Antisocial Behavior	When I have Problems Dealing With Having To Change Schools, I don't think others are helpful.
133	Change Families	Direct Action	When I have Problems Dealing With Having To Change Families, I try to work it out.
134	Change Families	Direct Action	When I have Problems Dealing With Having To Change Families, I try to figure it out.
135	Change Families	Direct Action	When I have Problems Dealing With Having To Change Families, I try to solve it.
136	Change Families	Indirect Activity	When I have Problems Dealing With Having To Change Families, I do something else instead.
137	Change Families	Indirect Activity	When I have Problems Dealing With Having To Change Families, I do anything else instead.
138	Change Families	Indirect Activity	When I have Problems Dealing With Having To Change Families, I do other things instead.
139	Change Families	Prosocial Behavior	When I have Problems Dealing With Having To Change Families, I seek out others.
140	Change Families	Prosocial Behavior	When I have Problems Dealing With Having To Change Families, I go to others.
141	Change Families	Prosocial Behavior	When I have Problems Dealing With Having To Change Families, I look to others.
142	Change Families	Antisocial Behavior	When I have Problems Dealing With Having To Change Families, I think others can't help me.
143	Change Families	Antisocial Behavior	When I have Problems Dealing With Having To Change Families, I think others just get in my way.

144	Change Families	Antisocial Behavior	When I have Problems Dealing With Having To Change Families, I don't think others are helpful.
145	Family	Direct Action	When I Have Problems Getting Along With My Foster Family, I try to work it out.
146	Family	Direct Action	When I Have Problems Getting Along With My Foster Family, I try to figure it out.
147	Family	Direct Action	When I Have Problems Getting Along With My Foster Family, I try to solve it.
148	Family	Indirect Activity	When I Have Problems Getting Along With My Foster Family, I do something else instead.
149	Family	Indirect Activity	When I Have Problems Getting Along With My Foster Family, I do anything else instead.
150	Family	Indirect Activity	When I Have Problems Getting Along With My Foster Family, I do other things instead.
151	Family	Prosocial Behavior	When I Have Problems Getting Along With My Foster Family, I seek out others.
152	Family	Prosocial Behavior	When I Have Problems Getting Along With My Foster Family, I go to others.
153	Family	Prosocial Behavior	When I Have Problems Getting Along With My Foster Family, I look to others.
154	Family	Antisocial Behavior	When I Have Problems Getting Along With My Foster Family, I think others can't help me.
155	Family	Antisocial Behavior	When I Have Problems Getting Along With My Foster Family, I think others just get in my way.
156	Family	Antisocial Behavior	When I Have Problems Getting Along With My Foster Family, I don't think others are helpful.
157	Family	Direct Action	When I Have Problems Fitting In With My Foster Family, I try to work it out.
158	Family	Direct Action	When I Have Problems Fitting In With My Foster Family, I try to figure it out
159	Family	Direct Action	When I Have Problems Fitting In With My Foster Family, I try to solve it.
160	Family	Indirect Activity	When I Have Problems Fitting In With My Foster Family, I do something else instead.
161	Family	Indirect Activity	When I Have Problems Fitting In With My Foster Family, I do anything else instead.
162	Family	Indirect Activity	When I Have Problems Fitting In With My Foster Family, I do other things instead.
163	Family	Prosocial Behavior	When I Have Problems Fitting In With My Foster Family, I seek out others.
164	Family	Prosocial Behavior	When I Have Problems Fitting In With My Foster Family, I go to others.

165	Family	Prosocial Behavior	When I Have Problems Fitting In With My Foster Family, I look to others.
166	Family	Antisocial Behavior	When I Have Problems Fitting In With My Foster Family, I think others can't help me.
167	Family	Antisocial Behavior	When I Have Problems Fitting In With My Foster Family, I think others just get in my way.
168	Family	Antisocial Behavior	When I Have Problems Fitting In With My Foster Family, I don't think others are helpful.
169	Family	Direct Action	When I Have Problems Getting My Foster Family To Like Me, I try to work it out.
170	Family	Direct Action	When I Have Problems Fitting In With My Foster Family, I try to figure it out
171	Family	Direct Action	When I Have Problems Fitting In With My Foster Family, I try to solve it.
172	Family	Indirect Activity	When I Have Problems Getting My Foster Family To Like Me, I do something else instead.
173	Family	Indirect Activity	When I Have Problems Getting My Foster Family To Like Me, I do anything else instead.
174	Family	Indirect Activity	When I Have Problems Getting My Foster Family To Like Me, I do other things instead.
175	Family	Prosocial Behavior	When I Have Problems Getting My Foster Family To Like Me, I seek out others.
176	Family	Prosocial Behavior	When I Have Problems Getting My Foster Family To Like Me, I go to others.
177	Family	Prosocial Behavior	When I Have Problems Getting My Foster Family To Like Me, I look to others.
178	Family	Antisocial Behavior	When I Have Problems Getting My Foster Family To Like Me, I think others can't help me.
179	Family	Antisocial Behavior	When I Have Problems Getting My Foster Family To Like Me, I think others just get in my way.
180	Family	Antisocial Behavior	When I Have Problems Getting My Foster Family To Like Me, I don't think others are helpful.